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RAILWAY AGE

Passenger Service Improvement Sets New Record

The experience of our railways and their customers with passenger traffic, rates and service within the last twenty years affords more concrete and definitely measurable examples of the disadvantages and advantages of monopoly, of government-aided competition and of competitive private enterprise—of all of which we recently have heard so much—than have been afforded meantime by the experience of any other industry and its customers in the world.

Thirteen months ago (October 14, 1939) the *Railway Age* published its first "Passenger Progress Issue." While reviewing all the efforts and progress made by the railways in the preceding five and one-half years in holding and recovering their passenger traffic, this issue was devoted principally to reviewing the development of streamlined trains and what had been achieved with them. This week the *Railway Age* publishes its second "Passenger Progress Issue," which reviews somewhat more comprehensively all improvements in passenger service made during the last six and one-half years, but especially during the last year, and shows that during the last year the number of new streamlined trains installed and other improvements in passenger service made have been the greatest in any single year in history and at least half as great as in the preceding five and one-half banner years of such progress. Thus strong was the impetus that had been attained during the preceding five and a half years—supplemented, perhaps, by the stimulating influence of publication of the remarkable record of those years in the first "Passenger Progress Issue" of this paper.

Increases in Streamliners and Air-Conditioning

A year ago there were 66 lightweight, streamlined trains in operation in this country. Since then 32 more, having 203 cars, have been placed in operation. And there are still 26, also having 203 cars, on order. There has been likewise continuance of the remarkably rapid progress begun seven years before in air-conditioning passenger cars. There are now about 39,000 railroad-owned passenger cars; and of these 6,852 are air-conditioned, according to the latest report, an increase over a year ago of 635. Many of these cars are used for short distance suburban service in which air-conditioning is much less important than for long hauls. There are, in addition, 6,895 cars that are owned by the Pullman Company; and of these 5,134 are air-conditioned, an increase within the last year of 110.

The air-conditioning of almost one-fourth of all the passenger cars and of about three-fourths of all the sleeping cars in the country within eight years after the invention of air-conditioning for passenger cars, and these the worst eight consecutive years of depression in the country's history, and the installation within six and one-half years of this period of about 100 new passenger trains unprecedented in their design, in the metals with which they are made, in the luxury they afford and their speeds, are perhaps the two most striking technical and economic achievements of the last decade in the United States. And they are the achievements of an industry which has been severely criticized by spokesmen of some other industries for lack of enterprise and progressiveness!

When Monopoly Ruled

The history of passenger service in this country until about 1920 was one of a virtual monopoly. There was some competition between the railways; but they and the Pullman Company devoted themselves principally to increasing their service enough to handle a traffic that naturally grew almost too fast without much sales effort. Measured by the standards of recent years the improvements in service and other sales efforts made from 1900 to 1920 were positively negligible; and yet within that twenty years the number of passengers car-

ried one mile annually by rail increased from 16 to 47 billion, or 206 per cent, and railway passenger earnings from 324 to 1,289 million dollars, or 300 per cent. Why use brains and money to stimulate and improve the handling of a kind of business whose growth almost without stimulation often caused embarrassing shortages of facilities?

The story of the nine years 1920-1929 is widely different. The routine of monopoly in seeking and handling customers was continued; and it still looked quite all right to most of those closely identified with the railroad industry, because it hardly occurred to them that their monopoly had been destroyed. But it had been. In 1920 average revenue per passenger-mile was 2.75 cents; average passengers per train were 82½; and average earnings per train-mile were $2.88. By 1929 total passenger traffic had declined more than one-third to 31 billion passenger-miles, and total passenger earnings also had declined almost one-third to 874 million dollars. It had been impracticable to reduce train service in proportion to the decline of traffic; and average number of passengers per train had declined to 55, average earnings per train-mile to $2.18. Illustrating significantly the continuing prevalence of monopoly methods, average revenue per passenger per mile was actually higher than when this terrific decline in traffic began—being 2.75 cents in 1920 and 2.81 in 1929.

Passenger Decline Accelerated By Depression

The period was one of great prosperity and of corresponding increase in the movement of people from place to place. But the competition of the automobile and bus had appeared and rapidly increased, aided by rapidly increasing government expenditures on highways. What would have been the results if, first, the government from the beginning had required those using the highways to pay adequately for their use, and, second, those most influentially identified with the railroad industry had quickly awakened to a realization of the threat to its passenger business presented by this rapid development of motor transportation? Nobody can answer this question; but what happened to railway passenger business from 1920 to 1929, and what has happened to it within more recent years does throw light on, first, the dangers of monopoly to the monopolists, as well as the public; second, the dangers of government-aided competition to any industry; and, third, what private enterprise, even though long handicapped by a monopoly psychosis, can accomplish when it decides that the best way to lick competition, even though government-aided, is to rise up and smite it with about everything available and practicable in the way of changes in service and rates (or prices).

The decline of passenger traffic was, of course, greatly accelerated by the depression. In 1933 the number of passengers carried one mile was **two-thirds less** than at the peak in 1920; total earnings from passenger service were **three-fourths less;** average passengers per train had become only 43, or about **half** as many as in 1920; and earnings per train-mile $1.28 or **less than half** as much.

Rate Decline, Traffic Increase, Since 1933

But that was the bottom. In 1937 railway passenger traffic had again increased to almost 25 billion passenger miles—being almost as large as in 1930 and 50 per cent larger than in 1933. Like all business, it was reduced by the "recession"; but in 1938 it was still 21 billion 600 million passenger miles and in 1939 had again gained to 22 billion 651 million passenger miles —being about 40 per cent more than at the bottom in 1933.

That passenger earnings of 417 million dollars in 1939 showed a gain of only 27 per cent over those of 1933, as compared with a 40 per cent gain in traffic, was due to the fact that reduction of their rates was part of the price the railroads found they had to pay to stop the decline in their business. Their passenger traffic was just slightly smaller in 1931 than in 1939; but their earnings from it in the former year were 550 million dollars and in the latter, as already stated, only 417 million. This decline in revenues accurately reflects the reduction of 27 per cent in their average rate made between 1931 and 1939. Average passengers per train in 1939, however, were 58, or 35 per cent more than in 1933, and average revenue per passenger train-mile $1.51—18 per cent larger than in 1933 and larger than in any other year since 1931. The available data regarding the passenger traffic and earnings of 1940 are not as yet sufficient to show definitely to what extent the results of last year will be bettered this year.

One cause, of course, of the complete reversal of the trend of railway passenger business since 1933 and its subsequent gain of about 50 per cent has been the general reduction of rates already mentioned. And this reduction of rates undoubtedly has been necessary and probably would have been even more helpful if begun back in the 20's when active competition of outside carriers began. But it is equally certain that reduction of rates alone would not have arrested the decline of passenger business, and that improvements in service have contributed more toward stopping it and to causing subsequent increases.

Improvements in Service Versus New Competition

The railroads were confronted with two widely different kinds of new competition. On the one hand, the aeroplane and the more expensive automobile presented them with new luxury competition consisting of a faster and otherwise higher class of service than was provided

by the best passenger trains then being operated. There was no answer to this competition excepting greatly increased speeds and more convenience and luxury, even if extra fares had to be charged for them—and it has been answered throughout the country with a rapidly increasing number of lightweight, streamlined trains traveling at much higher speeds and providing many more luxuries than any other trains that ever were operated anywhere before in the world.

On the other hand, the railways were confronted with the competition of buses and the cheaper kinds of automobiles providing at costs (apparently) lower than rail rates services (apparently) as comfortable and convenient as the comparable rail service. The costs of these new competing services usually were underestimated and their comfort and convenience overestimated, but they had to be met with service and rates that would convert the loss of customers into a gain. And this has been accomplished by the provision on many trains of better chairs and other improved coach accommodations and of improved tourist sleepers, at rates for both transportation and for sleeping accommodations lower than those charged on the better trains.

Increased Speeds, Air-Conditioning, Better Sleepers

The most outstanding improvement in passenger service has been, of course, the increase in the speed of trains. The first trains speeded up were the new streamliners; but faster schedules have now been extended to trains throughout the country, and to entire fleets of trains on some railways, until the 60 m. p. h. which until a few years ago was "tops" has now become a commonplace and is exceeded by trains in all parts of the country. In an article appearing in this issue data are given for 48 trains having overall scheduled speeds exceeding 55 miles an hour and for 29 having overall schedules exceeding 60 miles an hour; and as these trains regularly cover distances up to 2,300 miles most of them must maintain for long distances speeds exceeding, and often greatly exceeding, 60 miles an hour. As emphasized in articles elsewhere in this issue, numerous things have been required to make these speeds practicable and safe—lighter metals and improved design in cars, improved power, improved track, improved signaling, and so on.

Probably air-conditioning has been second in importance only to increased speed in holding and attracting customers. There have been, of course, innumerable other important improvements, including especially the substitution of cars having roomettes and bed rooms for the former standard sleepers having only upper and lower berths, compartments and drawing rooms. We believe all the various improvements in service that have been made are pretty adequately covered in articles elsewhere in this issue.

We recur to a question at which we have hinted already—namely, how did these almost innumerable improvements in railway passenger service happen to be made during a period of depression rather than before the depression began or after it ended? Undoubtedly the correct answer is that they have been made in spite of the depression and because in the years immediately preceding it virtual monopoly in the transportation industry began to be replaced by keen competition; and this competition has happened to become keener and keener during the depression. But suppose that before the depression transportation had been not only a virtual monopoly, but a government monopoly.

What Would Have Occurred Under Government Ownership?

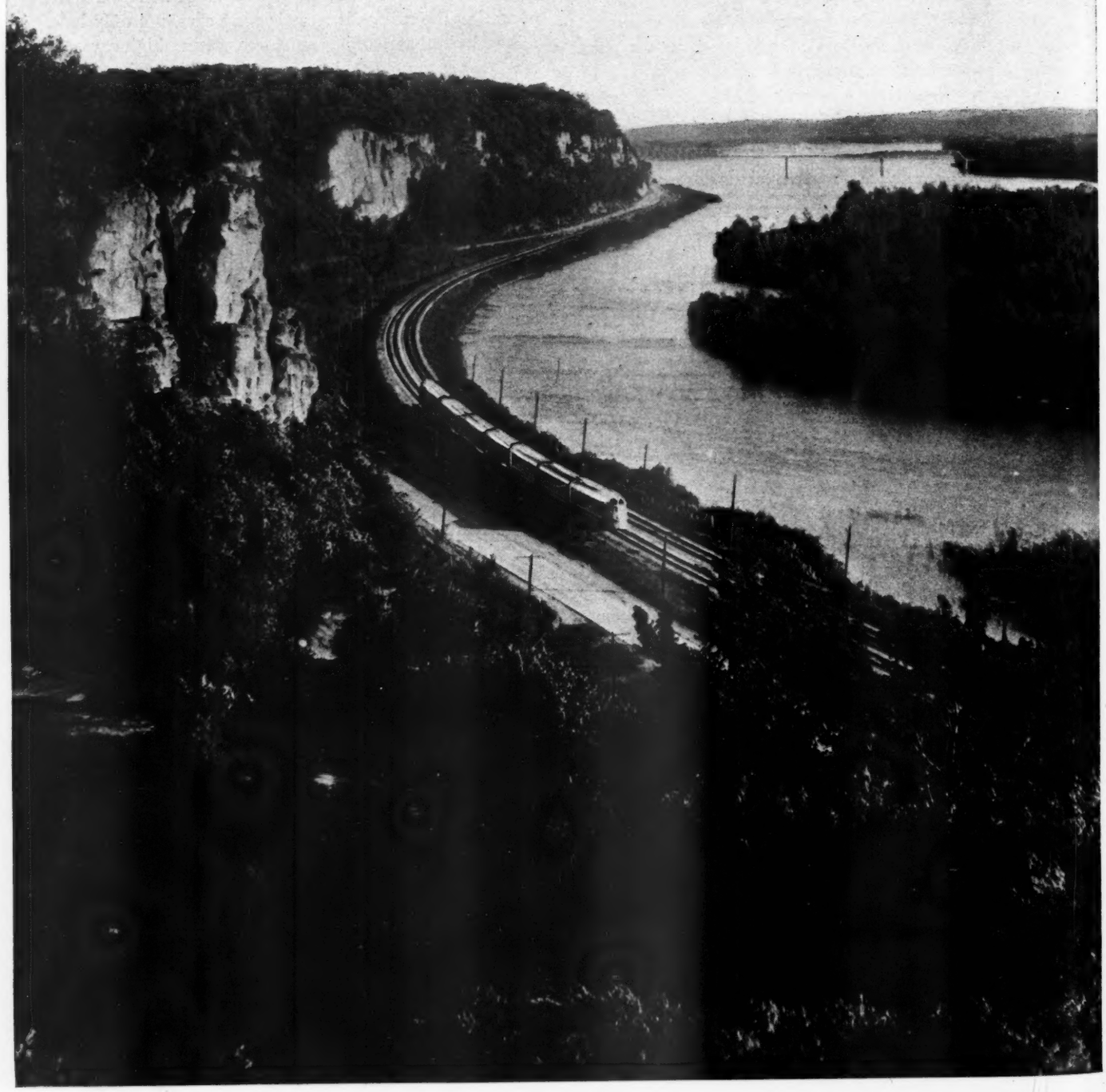
Would the government, if it had owned and been operating the railroads and sleeping cars, not only have allowed, but actually stimulated water, highway and air competition by subsidizing these competing forms of transportation while exercising a much less drastic control over them than over its own railways? Obviously not. Undoubtedly, if the government had owned and been operating the railroads and sleeping cars it would have maintained its virtual monopoly of transportation either by making itself also the sole operator of transportation by water, highway and air, or by strictly regulating instead of not regulating, and by heavily taxing instead of subsidizing, these other agencies of transportation. In that case the railroads would not have been stimulated by outside competition as they have been; and probably few or none of the improvements in their service made within recent years would have occurred.

A Vindication of Private Competitive Enterprise

The railways have rightfully complained, and still rightfully complain, of the government aid which has been and still is given to their competitors. It has been unjustifiable because there would have been a great increase of competition in transportation if the government had treated all carriers alike, and its aid to some of the competitors has over-stimulated competition. But under present conditions and trends in political and economic affairs it cannot be too strongly emphasized that the great progress which has been made during the depression in improving railway service, both passenger and freight, has been due principally to (1) increased competition, and (2) private enterprise in developing the means of both increasing and meeting that competition. No other industry in the country has suffered, and still suffers, so much from bureaucratic repression as the railroad industry; and, strangely enough, it has been that industry which, during a period of rapidly increasing bureaucratization in this country, has afforded perhaps the most striking evidence of the public advantages of private competitive enterprise.

Passenger Progress

Scores Most Outstanding Year



REGARDED from any angle, the year that has passed since the publication of the last Passenger Progress issue of the *Railway Age* (October 14, 1939) has been most outstanding. It has been an unprecedented year in the number of new streamliners placed in service; the number of such trains now on order exceeds that of any previous period, both as to trains and total cars involved; the existing streamliners are showing splendid earnings; Pullman progress in more attractive designs and new lightweight sleeping cars has continued unabated; coach trains have created interesting records; and general passenger service improvements have been outstanding. The dramatic effort to recapture passenger traffic is now showing unmistakeable signs of bearing fruit in increased public interest and increased revenues.

Table 1—New Streamlined Trains Placed in Service Since September 1, 1939

No. of Trains	Train Name	Approximate Number of Cars Involved	Operated Between	Railroad
1	Silver Streak	4	Kansas City-St. Louis	C. B. & Q.
2	Texas Zephyr	18	Denver-Ft. Worth-Dallas	C. & S.-Ft. W. & D. C.
1	Treasure Island	9	Chicago-San Francisco	C. & N. W.-U. P.-S. P.
2	400	22	Chicago-St. Paul-Minneapolis	C. & N. W.
2	Daylight	28	San Francisco-Los Angeles	S. P.
1	Tulsan	6	Kansas City-Tulsa	A. T. & S. F.
2	Rocky Mountain Rocket	16	Chicago-Denver	C. R. I. & P.
1	Kansas City Rocket	3	Kansas City-Belleville	C. R. I. & P.
1	Colorado Springs Rocket	3	Limon-Colorado Springs	C. R. I. & P.
2	Champion	14	New York-Miami	A. C. L.
1	Champion	7	New York-Miami	F. E. C.
1	Henry M. Flagler	7	Jacksonville-Miami	F. E. C.
2	Silver Meteor	14	New York-Miami-St. Petersburg	Seaboard
2	Eagle	14	St. Louis-Kansas City-Omaha	M. P.
2	Vulcan	4	Chattanooga-Meridian	Southern
2	Cracker	4	Atlanta-Brunswick	Southern
1	Goldenrod	2	Birmingham-Mobile	Southern
1	Joe Wheeler	2	Oakdale-Tuscumbia	Southern
3	Southern Belle	24	Kansas City-Shreveport-New Orleans	K. C. S.-L. & A.
2	Susquehanna	2	Jersey City-Paterson	N. Y. S. & W.
32		203		

In addition, many of the existing streamliners were augmented by the addition of new lightweight, streamlined cars.

In spite of the millions of dollars that were spent for new streamliners prior to September 1, 1939, many more millions have been spent during the months that have elapsed since that date. This last year has been one of astonishing and outstanding progress in passenger service improvements. It has seen 32 new, lightweight,

Table 2—New Streamlined Trains On Order As of November 1, 1940

No. of Trains	Train Name	Approximate Number of Cars Involved	Operated Between	Railroad
1	St. Louis-St. Paul Zephyr	8	St. Louis-St. Paul	C. B. & Q.
1	City of Los Angeles	17	Chicago-Los Angeles	C. & N. W.-U. P.
1	City of San Francisco	17	Chicago-San Francisco	C. & N. W.-U. P.-S. P.
2	San Joaquins	20	San Francisco-Los Angeles	S. P.
2	Larks	36	San Francisco-Los Angeles	S. P.
2	Choctaw Rockets	8	Memphis-Amarillo	C. R. I. & P.
1	St. Louis-St. Paul Rocket	8	St. Louis-St. Paul	C. R. I. & P.
2	Arizona Limiteds	14	Chicago-Phoenix	C. R. & P.-S. P.
1	City of Miami	7	Chicago-Miami	Illinois Central
1	South Wind	7	Chicago-Miami	Pennsylvania
1	Miss Lou	1	New Orleans-Jackson, Miss.	Illinois Central
1	Illini	1	Chicago-Champaign	Illinois Central
1	———	2	Waterloo-Chicago	Illinois Central
1	Dixie Eagle	3	Memphis-Tallulah, La.	M. P.
2	Electro-Liners	6	Chicago-Milwaukee	C. N. S. & M.
3	———	24	New York-New Orleans	Southern
3	———	24	Washington-Memphis	Southern
*26		203		

In addition new lightweight streamlined cars are now being built to double the capacity of the Champions of the A. C. L.—F. E. C. and the Seaboard Silver Meteors, in which the Pennsylvania will participate. This involves a total of about 50 cars.

The Southern Pacific has on order several cars for addition to various trains throughout the system, in addition to the four new streamliners mentioned above.

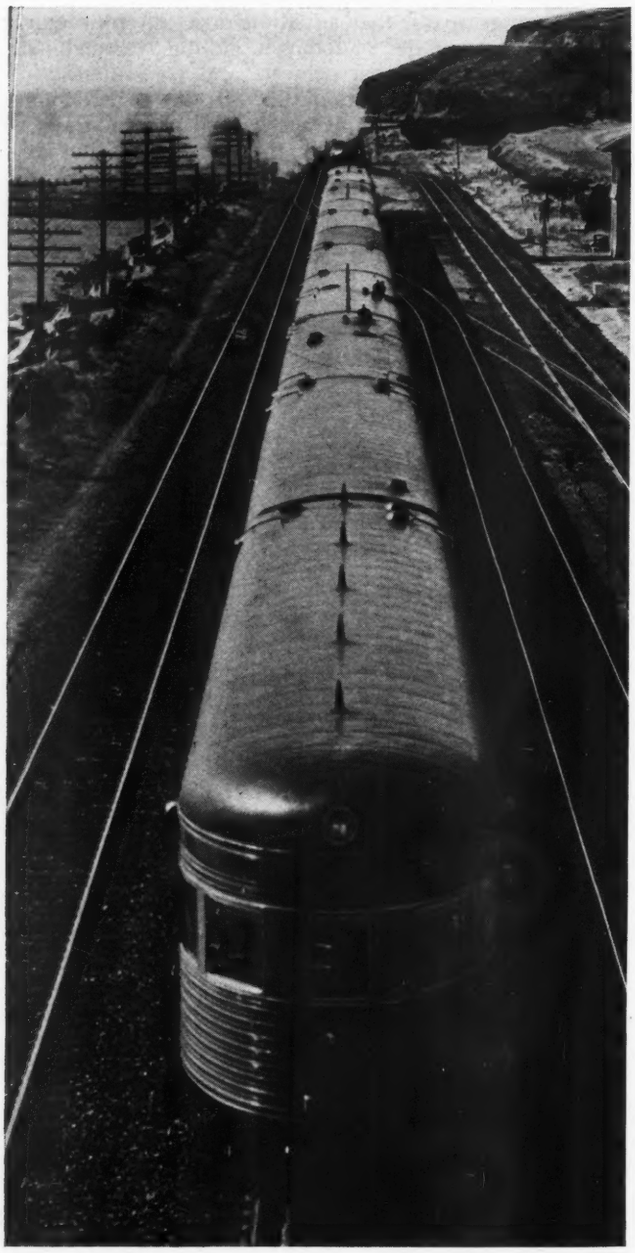
The Santa Fe has placed an order for 20 lightweight cars which have not yet been assigned to specific trains.

It is inconceivable that anyone could look at the record and not be convinced that, regardless of the extent to which the railways may have been asleep at the switch during former years, that situation does not now exist. The railway passenger of today is getting tremendously increased value in speed, comfort and convenience for his travel dollar. The facts outlined in this issue demonstrate clearly the remarkably accelerated pace of Passenger Progress; they show, too, that far from being discouraged or disheartened, the railways are determined to make an intelligent and continuing fight to hold the passenger traffic they now have and to bring an increasing volume of such traffic back to the rails.

Speeding 427 Miles Daily in Six Hours Flat, the Twin Zephyr Maintains an Overall Average Speed Record of 71.1 m.p.h.

streamlined trains completed and placed in service, involving a total of 203 cars. And this number will be increased still further when the 26 trains now on order, also involving 203 cars, are completed. Some of these have already been built and are to be placed in service before the first of the year, while others are still in the builders' plants and will be delivered at intervals between now and next April.

During the year also, many of the roads which have



The Four S. P. Daylights Rank Among America's Most Popular Trains

been operating new streamliners have increased their fleets materially and other railways that did not previously have such service have purchased and installed new trains to give the country an ever-expanding mileage of high-speed streamlined service.

Table 1 shows the details of the new streamliners installed during the year, while Table 2 indicates the trains that are to be delivered between now and early spring.

No two tables ever before prepared in railway history show such tremendous strides in passenger service during a similar period.

The map shows graphically how this service has been expanded since September 1, 1940, and also indicates the still further expansion that will take place in the next few months when the trains now under construction are completed. There has also been a marked expansion in the service given by rebuilt trains, which is covered in a separate article.

The developments in these various fields follow in detail. Up-to-date operating and traffic figures are also presented for streamlined trains on those roads which have added no new trains of this character since September 1, 1939.

The Burlington Fleet

When the Pioneer Zephyr went into revenue service on November 11, 1934, the present large fleet of 14 Burlington Zephyrs could hardly have been dreamed of; yet within a comparatively short space of time, this small day-train was followed by the big Twin Zephyrs for long-distance, high-speed daytime operation and the Denver Zephyrs for overnight service with lightweight, streamlined sleeping cars as well as coaches. The Burlington fleet as now constituted rolls 8,441 train miles under its wheels daily and is well over the ten million mark in total train miles.

The earlier trains of the Zephyr fleet were so-called "fixed" trains; that is to say, cars could not be added or removed by a mere switching operation, although the Burlington could and did have additional cars built into some of the trains. The immediate hearty reception accorded these trains by passengers made early expansion of these trains necessary and the later members of the Zephyr fleet are so arranged as to permit cars to be added easily when the occasion demands; this has enabled the Burlington to dispense very largely with the previous necessity of running standard trains as second sections of the streamliners. In normal operation today, power units and other cars are transferred frequently from one train to another as this equipment on the later train is largely interchangeable. The Burlington has also purchased 12 additional new stainless steel coaches with which it augments various trains as the occasion demands.

In other words, the streamliners are no longer experiments on the Burlington but have become a part of regular passenger train operation and their runs and their consist are based on operating efficiency and passenger demand.

The Denver Zephyrs and the second pair of Twin Zephyrs have remained on the same runs. The Pioneer Zephyr, originally in Kansas City-Omaha-Lincoln service, was used for a short time between Chicago and Denver while the Denver Zephyrs were being built, and, for a time, also in St. Louis-Kansas City service. It has recently been transferred to the St. Louis-Burlington, Iowa, run. The Mark Twain Zephyr, originally built for the latter run, was also used for a short time in Chicago-Denver service. Then, when the Denver Zephyrs were completed, the Mark Twain served as a second section, handling local coach travel between Chicago and Burlington. It is now on the St. Louis-Kansas City run. One of the original Twin Zephyrs was rechristened the Ozark Zephyr and ran for a time between Kansas City and St. Louis, but it is now known as the Texas Rocket, operating between Fort Worth-Dallas and Houston, where the other original Twin, now the Sam Houston Zephyr, is also in joint Rock Island-Burlington service.

This year the Burlington has placed three new Zephyrs in service: two on the C. & S.-Ft. W. & D. C. between Denver and Fort Worth-Dallas, materially shortening the schedule between those points; and the Silver Streak, which is operating between St. Louis and Kansas City jointly with the General Pershing Zephyr, which was inaugurated in the spring of 1939.

In addition, another Zephyr will be placed in operation about January 1 in joint service with the Rock Island, which will also supply a train, in overnight serv-

ice, including Pullman accommodations, between Minneapolis and St. Louis.

The C. & N. W.-U. P.-S. P. Fleet

The City of Salina of the Union Pacific was the first of the modern streamlined fleet and was properly hailed as an eighth wonder of the world on its exhibition tours as recently as 1934. Today, this little train, still in profitable revenue service, resembles a harbor tug in relation to the Queen Mary when placed alongside the transcontinental luxury speedsters operated over the U. P. and connections. The original transcontinental streamliner, the City of Portland, was followed rapidly by the City of Los Angeles (C. & N. W.-U. P.) and the City of San Francisco (C. & N. W.-U. P.-S. P.). These trains, considered at the time by some railway men as too ambitious in size, soon refuted this theory completely and, in fact, with solid bookings for every "sailing" for weeks and often months in advance, proved too small for the patronage offered. The short-run coach train, City of Salina, and the overnight City of Denvers (C. & N. W.-U. P.), have remained on their original runs. The other trains have undergone numerous changes. The original 11-car City of Los Angeles and City of San Francisco have been replaced by new 17-car trains. One of these smaller trains then supplanted the still smaller City of Portland and is still in that service, while the other was increased to 13 cars and is operated as a companion train to the 17-car City of Los Angeles.

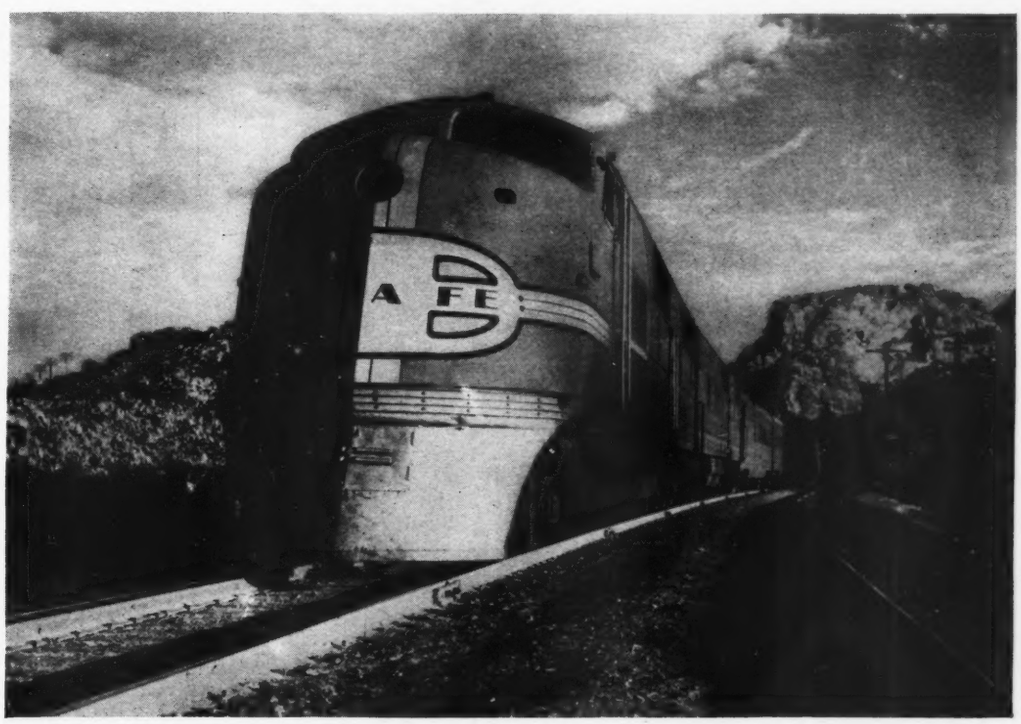
When the 17-car City of San Francisco was wrecked by sabotage in August, 1939, stand-by and extra equipment of the de luxe character necessary to this service was quickly assembled to replace such equipment as was badly damaged and the City of San Francisco continued its runs with little interruption. For some years it has been supplemented by a modernized companion train, the Forty-Niner, and in 1940 the Treasure Island, inaugurated as a standard train in the 1939 summer season, was equipped with new, lightweight streamlined railway and Pullman cars to give additional Chicago-San Francisco service on the C. & N. W.-U. P.-S.P. route during the summer months.

Recently, the larger City of Los Angeles was equipped with a new, lightweight streamlined lounge-diner for the use of coach passengers, thus increasing it to 18 cars, the largest streamliner now in service. Moreover, a new City of Los Angeles (C. & N. W.-U. P.) and a new City of San Francisco (C. & N. W.-U. P.-S. P.) have been ordered and are expected to be ready for operation next spring These will both be 17-car trains.

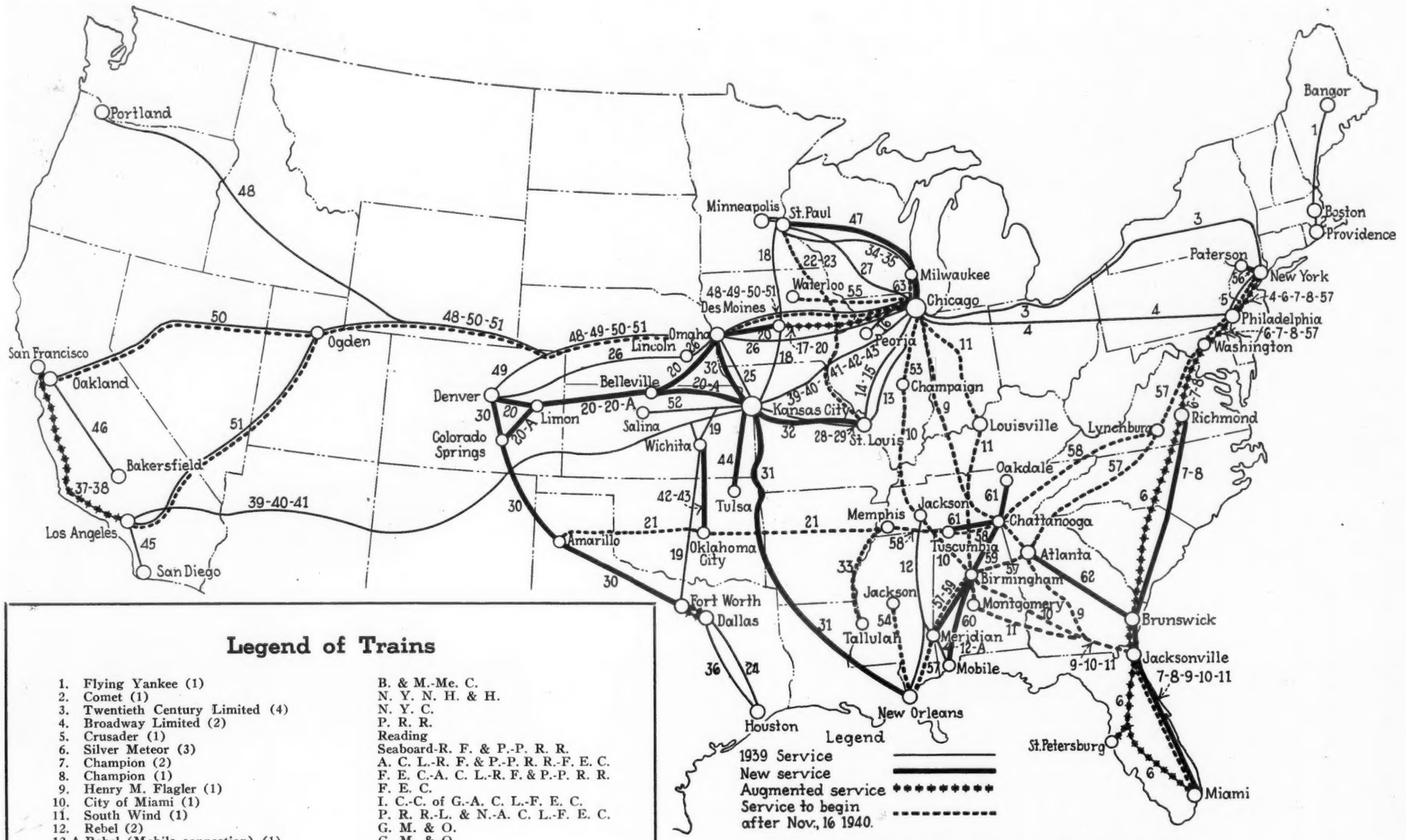
In addition to participating in this joint service, the Chicago & North Western operates successful streamliners of its own. It was the first road (January 2, 1935) to initiate high-speed service between Chicago and St. Paul-Minneapolis. This schedule was protected by two standard trains, the 400s, which continued in operation until September 27, 1939, when they were supplanted by two new Diesel-powered streamliners. Despite the fact that there were already six other high-speed streamliners operating four schedules daily in each direction between Chicago and the Twin Cities, the new 400 was an immediate success, and month after month since its inception has shown increases up to 50 per cent over the passengers hauled by the former standard train. The success of this particular service demonstrates conclusively the value of the streamliners in attracting travel. Some of the traffic has, of course, been taken from other railways; some of it has been taken from the night trains, but a large proportion of it has been taken from the highways, largely people who would have traveled in private automobiles otherwise, while a most encouraging percentage is new travel, attracted by the streamliners, that would not otherwise have moved at all.

The Southern Pacific Fleet

In addition to participating in the joint transcontinental service referred to above, the Southern Pacific also operates highly successful, steam-powered streamliners of its own, and, on January 10, 1940, placed two new and additional Daylights in service between San Francisco and Los Angeles. The original trains were temporarily removed from service, completely overhauled and refurbished and returned to service on March 30, 1940, with a noon departure to supplement the morn-



The Super-Chief Leads the Santa Fe's Fleet of Sixteen Speedsters



Legend of Trains

1.	Flying Yankee (1)	B. & M.-Me. C.
2.	Comet (1)	N. Y. N. H. & H.
3.	Twentieth Century Limited (4)	N. Y. C.
4.	Broadway Limited (2)	P. R. R.
5.	Crusader (1)	Reading
6.	Silver Meteor (3)	Seaboard-R. F. & P.-P. R. R.
7.	Champion (2)	A. C. L.-R. F. & P.-P. R. R.-F. E. C.
8.	Champion (1)	F. E. C.-A. C. L.-R. F. & P.-P. R. R.
9.	Henry M. Flagler (1)	F. E. C.
10.	City of Miami (1)	I. C.-C. of G.-A. C. L.-F. E. C.
11.	South Wind (1)	P. R. R.-L. & N.-A. C. L.-F. E. C.
12.	Rebel (2)	G. M. & O.
12-A	Rebel (Mobile connection) (1)	G. M. & O.
13.	Green Diamond (1)	I. C.
14.	Abraham Lincoln (1)	Alton
15.	Ann Rutledge (1)	Alton
16.	Peoria Rocket (1)	C. R. I. & P.
17.	Des Moines Rocket (1)	C. R. I. & P.
18.	Kansas City-Minneapolis Rocket (2)	C. R. I. & P.
19.	Kansas City-Dallas Rocket (2)	C. R. I. & P.
20.	Rocky Mountain Rockets (2)	C. R. I. & P.
20-A	Rocky Mountain Rocket Connections (2)	C. R. I. & P.
21.	Choctaw Rocket (2)	C. R. I. & P.
22.	St. Louis-Minneapolis Rocket (1)	C. R. I. & P.-C. B. & Q.
23.	St. Louis-Minneapolis Zephyr (1)	C. B. & Q.-C. R. I. & P.
24.	Sam Houston Zephyr-Texas Rocket (3)	C. B. & Q.-C. R. I. & P.

More New Streamliner Routes Opened This Year Than Ever Before—Still More in Prospect

ing trains. At the same time, the already high-speed schedules of both the Morning and Noon Daylights were still further shortened.

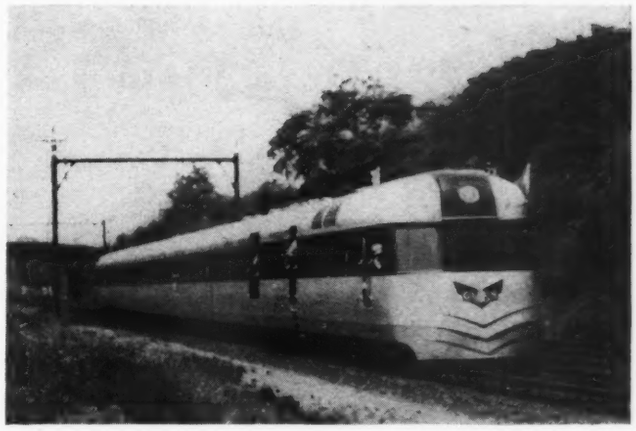
The Daylights operate over the Coast line of the S. P. between San Francisco and Los Angeles and, to provide equivalent service on the Valley line between those cities, two new 10-car streamliners have been ordered which will be placed in service early next year. These San Joaquins will consist of six coaches, a dining car and a parlor, observation car with an exterior color scheme of wide orange, black and red striping.

The Southern Pacific has also ordered two 18-car streamliners for overnight service between San Francisco and Los Angeles on the Coast line. Each of these Larks will consist of two baggage cars, a unique 3-car articulated kitchen-diner-lounge and 13 Pullman sleepers. Also, in conjunction with the Rock Island, the S. P. will install a new high-speed extra-fare all-room train, the Arizona Limited, between Chicago, Tucson and Phoenix. This train is described later.

All of these new trains will be operated on the S. P. with high-speed streamlined steam locomotives of the 4-8-4 type and 20 new locomotives of this type have been ordered. In addition to the other equipment ordered, and a number of lightweight cars already in service on various trains, the Southern Pacific has arranged for the building of individual passenger cars which will go into a pool of lightweight equipment for use throughout the system. Trains that will share in the allottment of these cars include the Californian, the Sunset Limited, the San Francisco Challenger, the Pacific Limited, and the Coaster.

The Hiawathas

The C. M. St. P. & P. was an early entrant in the streamlined parade with its steam-powered Hiawathas between Chicago and the Twin Cities. These trains have been progressively supplied with new equipment, as a continuous program, the older Hiawatha equipment being placed in such trains as the Chippewa and the North Woods Hiawatha. Although the original consist of the Hiawatha has been materially increased, it is still frequently necessary to run extra sections and the previous Hiawatha equipment also serves for this purpose. This train has, on occasion, run in as many as eight sections.



The Rebel Serves the Deep South

The Santa Fe Fleet

The Santa Fe did not enter the streamlined field until June 15, 1937, when the Super Chief was placed in service between Chicago and Los Angeles, but it has made rapid strides since then, as is indicated by its present total fleet of 16 trains. Its transcontinental streamliners and those operating in California have remained in their original service. Several important changes and additions have, however, been made in the schedules of other Santa Fe streamliners. The Kansas Cityan and the Chicagoan, previously in service between Wichita, Kansas City and Chicago, were re-scheduled to permit their operation to be extended to Oklahoma City, so that each of these trains now makes a daily run between Chicago and Oklahoma City, carrying sleeping cars between Kansas City and Oklahoma City which are operated beyond the later point to Dallas in standard trains.

Fourteen new lightweight streamlined cars were delivered by the car builders last spring, to be used partly as extra and additional equipment in existing trains and partly to make up a new streamlined train, the Tulsan, which operates between Tulsa, Okla., and Kansas City and makes close connections at the latter point with the streamliners to and from Chicago. In addition, this road has just ordered 20 new lightweight cars which will be used to augment the streamlined fleet.

The Rock Island Fleet

The Rock Island entered the field of streamlined train operation in September, 1937, with its Rockets, several of which are still on their original runs. The Rocket fleet now includes 8 trains, with 2 streamlined connections now in operation and 5 new trains to go in service shortly. The Rocket originally assigned to Denver-Kansas City service was transferred after a few months to the Kansas City-Oklahoma City service, where it proved so popular that the service was soon extended between El Reno, Okla., and Dallas, with a short side trip from El Reno to Oklahoma City and return, included

24.	Sam Houston Zephyr-Texas Rocket (2)	C. B. & Q.-C. R. I. & P.	
25.	Pioneer Zephyr (1)	C. B. & Q.	
26.	Denver Zephyr (2)	C. B. & Q.	
27.	Twin Zephyr (2)	C. B. & Q.	
28.	Mark Twain Zephyr (1)	C. B. & Q.	
29.	General Pershing-Silver Streak Zephyr (2)	C. B. & Q.	
30.	Denver-Dallas Zephyr (2)	C. & S.-F. W. & D. C.	
31.	Southern Belle (3)	K. C. S.-L. & A.	
32.	Eagle (2)	M. P.	
33.	Dixie Eagle (1)	M. P.	
34.	Morning Hiawatha (2)	C. M. St. P. & P.	
35.	Afternoon Hiawatha (2)	C. M. St. P. & P.	
36.	Sunbeam (2)	S. P.	
37.	Morning Daylight (2)	S. P.	
38.	Noon Daylight (2)	S. P.	
39.	Super Chief (2)	A. T. & S. F.	
40.	Chief (6)	A. T. & S. F.	
41.	El Capitan (2)	A. T. & S. F.	
42.	Chicagoan	A. T. & S. F.	
43.	Kansas Cityan (1)	A. T. & S. F.	
44.	Tulsan (1)	A. T. & S. F.	
45.	San Diegan (1)	A. T. & S. F.	
46.	Golden Gate (2)	A. T. & S. F.	
47.	400 (2)	C. N. W. U. P.	
48.	City of Portland (1)	C. N. W. U. P.	
49.	City of Denver (2)	C. N. W. U. P.	
50.	City of San Francisco (1)	C. N. W. U. P. S. P.	
51.	City of Los Angeles (2)	C. N. W. U. P.	
52.	City of Salina (1)	U. P.	
53.	Illini (1)	I. C.	
54.	Miss Lou (1)	I. C.	
55.	New Train (1)	I. C.	
56.	Susquehanna (2)	N. Y. S. & W.	
57.	New Train (3)	Southern-P. R. R.	
58.	New Train (3)	Southern-N. & W.	
59.	Vulcan (2)	Southern	
60.	Goldenrod (1)	Southern	
61.	Joe Wheeler (1)	Southern	
62.	Cracker (2)	Southern	
63.	Electro-Liner (2)	C. N. S. & M.	

NOTE: Number of trains shown in parenthesis.

Speed Along the Hudson Where Many Streamliners Pass Daily

in the Kansas City-Dallas run. This required the services of another Rocket which was transferred from the joint Burlington-Rock Island service between Fort Worth-Dallas and Houston.

The last year has witnessed a large increase in Rocket service and in new Rockets ordered. The Rocky Mountain Rockets were delivered by the builders and put in service between Chicago and Denver, with a Rocket-equipped connection via Limon, Colo., to Colorado Springs. A connection was also established, with streamlined Rocket equipment, between Kansas City and Belleville, Kan., between which point and Denver the cars are handled on the Rocky Mountain Rocket.

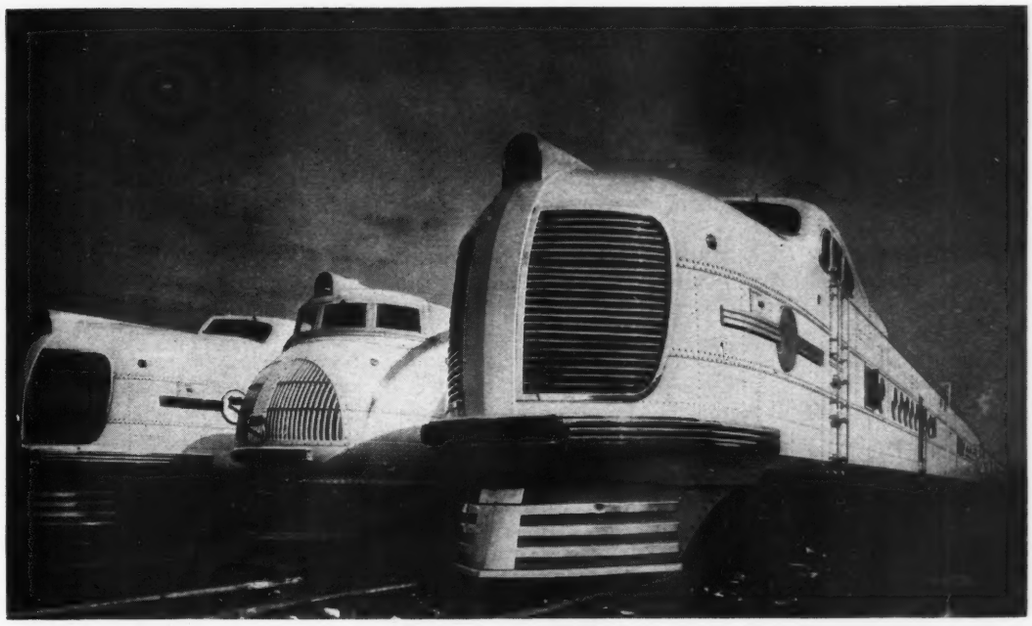
In addition, three other Rockets, all involving sleeping car as well as coach equipment, are about to be delivered by the builder. Two of these—the Choctaw Rockets, will go into service late in November between Memphis, Tenn., and Amarillo, Texas, materially improving the schedule between those points and for many intermediate towns. The third new Rocket is to be used in overnight service between St. Louis and the Twin Cities, in joint operation with the Burlington. Here, too, the schedule will be materially improved. All three trains will carry coach and Pullman equipment.

Two new streamlined extra-fare trains, the Arizona Limiteds, will be operated between Chicago and Tucson, Ariz., and Phoenix, by the Rock Island and the S. P. These trains will leave both Chicago and Phoenix every second day on a fast schedule, beginning December 15 and will be operated until April 1, 1941. Each will consist of seven cars and a power unit, Diesel-electric, between Chicago and Tucumcari, N. M., and the steam between Tucumcari and Phoenix. The consist will include one baggage-dormitory, one de luxe diner, two bedroom-roomette cars, two drawing room-bedroom-compartment cars, and a buffet-lounge-room car.

New York-Florida Service

Apart from the excellent service offered by a large number of standard trains, the development of fast coach service between New York and Miami has been highly interesting and informative. In the 1938-1939 season the Atlantic Coast Line inaugurated the Vacationer as a winter season de luxe modernized all-coach train to Florida. The same season, the Seaboard installed its Silver Meteor, a Diesel-powered, all-coach streamliner between New York and Miami and between New York and St. Petersburg on alternate trips. The immediate success of these trains induced the Seaboard and the A. C. L., in conjunction with the Florida East Coast, to expand the service. Accordingly, on December 1, 1939, the A. C. L. put two new all-coach streamliners into service with another similar train belonging to the

Within a Few Months the Rock Island Will Increase Its Fleet to 15 Rockets



Transcontinental Luxury Trains of the C. & N. W.-U. P.-S. P. Straining at the Leash

F. E. C. All three were named the Champion. The F. E. C. also inaugurated a new streamliner, the Henry M. Flagler, between Jacksonville and Miami. On the same date, the Seaboard installed two new Silver Meteors. Thus, daily streamlined coach service in new lightweight equipment was made available on a daily basis between New York and Miami by both the A. C. L.-F. E. C. and the Seaboard, with a total of six new streamlined trains involved, all operating between New York and Washington via the Pennsylvania and between Richmond and Washington via the Richmond, Fredericksburg & Potomac.

The success of these trains is indicated by the fact that, beginning December 20, 1940, each of the six trains will be doubled in capacity by the addition of seven new streamlined cars and a Diesel-electric power unit to each train, making 14 cars in all for each train, exclusive of the two power units. On November 10, the one millionth mile of Silver Meteor service was celebrated on the Seaboard.

The New York-Florida service represents an interesting example of the building of additional travel, not so much by competition between railways as by inducing passengers to ride the rails instead of other means of transportation and by the creation of new business among people who, except for the promotional activities and the provision of splendid service by the Pennsylvania, the R. F. & P., the Seaboard and the A. C. L.-F. E. C., would not have gone to Florida at all. This applies to the luxuy fleets operating between New York and Miami as well as to the coach trains. Particularly outstanding has been the promotion of Florida as an all-year resort. In the early fall for example, all-expense tours are run at extremely reasonable rates that involve rail tickets and accommodations at some of Florida's most luxurious hotels.

All of the lines involved show increases. For example the Seaboard passenger revenue for January, 1940, was the best January in its history except 1929. The accompanying table shows the increases in passengers and passenger revenues of the Florida East Coast for specified recent months, as compared with the corresponding months of the previous year.

	% Increase	
	No. of Passengers	Passenger Revenue
December, 1939	48.6	19.8
January, 1940	56.8	34.5
February	45.0	25.5
March	21.8	6.5
April	46.3	33.5
May	45.3	32.2
June	53.6	42.7
July	50.6	43.7

Chicago-Florida Service

The success of the New York-Florida coach trains has brought about the inauguration of a somewhat similar service between Chicago and Miami by the C. & E. I., the Illinois Central and the Pennsylvania as originating carriers. This service is unique in that each road will operate one streamlined train, and the schedules will be so pooled as to give daily departures from both Chicago and Miami. The service will be begun in late December by the C. & E. I., followed the next day by the I. C., then the Pennsylvania, and thereafter by daily departures in that order. Tickets will be interchangeable and the initial advertising will also be on a joint basis.

The C. & E. I. will use the Henry M. Flagler of the F. E. C., which train began operations between Jacksonville and Miami on December 2, 1939, and has been in that service since. This train consists of a baggage-dormitory car, 4 coaches, 1 diner and 1 tavern-observation car. The I. C. and the Pennsylvania are building new streamliners for this service. The schedules will be identical and the accommodations, number of cars and passenger-carrying capacity will be practically the same in the I. C. and Penna. trains as in the C. & E. I. train. The Dixie Flagler (C. & E. I.) will operate over the C. & E. I.-L. & N.-N. C. & St. L.-A. B. & C.-A. C. L.-F. E. C. The City of Miami (I. C.) will use the I. C.-C. of G.-A. C. L.-F. E. C. route and the South Wind (Penna.) will be operated via the Penna.-L. & N.-A. C. L.-F. E. C.

The Illinois Central was one of the pioneers in streamlined service with its Green Diamond between Chicago and St. Louis. In addition to the City of Miami, this railway will shortly accept delivery of the Miss Lou and the Illini, two new streamlined, one-car type, air-conditioned trains, to be operated between New Orleans-Jackson, Miss., and Chicago-Champaign respectively. Two more of such cars are also now being built for the I. C., and will be operated as a two-car streamlined train between Waterloo, Iowa, and Chicago.

The extent of the service that will be available to Florida during the coming season from the colder climates is indicated by the fact that the A. C. L. alone

will participate in the daily movement of 17 coach and Pullman trains to Florida from the north, east and west, which will have accommodations for more than 3,600 Florida-bound passengers every day.

Other Railways Enter Field

Among the railways that have inaugurated streamlined service for the first time since September 1, 1939, in addition to the A. C. L. and F. E. C. mentioned above, are the Missouri Pacific, the Southern, the Kansas City Southern-Louisiana & Arkansas and the New York, Susquehanna & Western.

The Missouri Pacific, which had been meeting competition with standard, high-speed trains, began the operation of two, new, streamlined, Diesel-powered Eagles early in the year between St. Louis, Kansas City and Omaha, on fast schedules. The success of these trains has resulted in the purchase of another streamliner, the Dixie Eagle, which will be put in service between Memphis, Tenn, and Tallulah, La., shortly.

A significant venture into a territory hitherto without streamlined train service was launched on September 1, 1940, by the K. C. S.-L. & A., with three new streamlined Southern Belles. These trains supply coach and Pullman service between Kansas City, Shreveport and New Orleans, and have cut many hours from the schedules between those cities and intermediate points. The famous southern dining car service, including coffee served in the berth in the morning, will be continued on the new trains.

It will be observed that streamliners are not confined to any one service. Some are doing excellent work on short local runs; others are rolling up passenger revenues on long distance day runs with few stops between terminals. Still others are in fast overnight service, while the transcontinental aristocrats sweep across the country in all their extra-fare magnificence. This year, however, the first streamliners entered commuter service on the N. Y. S. & W., between Paterson, N. J., and Jersey City, with fast bus connections to downtown New York. During the rush periods of the morning and evening these cars are operated as a two-car, multi-control streamliner, seating 180 passengers. For the rest of the day, they are separated and operate as one-car trains, each piling up well over 400 miles daily in commuter service. What has happened? Well—the patronage was just over 2,000 a week when the service started a few months ago, and it is now over 9,000 passengers weekly.

In the fall of 1939, the Southern placed six new two-car streamliners in service, two between Chattanooga, Tenn., and Meridian, Miss.; two between Atlanta, Ga., and Brunswick; one between Birmingham, Ala., and Mobile; and one between Oakdale, Tenn., and Tuscumbia, Ala. This railway has recently ordered six new Diesel-electric powered streamliners for service between New York and New Orleans and also between Washington and Memphis. Each train will consist of a power car, a baggage-dormitory-chair car, chair cars, a 48-seat dining car and an observation-lounge-tavern car. The New York-New Orleans runs will be a new service operated in connection with the Pennsylvania between Washington and New York. The Washington-Memphis service will be operated in connection with the Norfolk & Western between Lynchburg, Va., and Bristol. The new trains will replace the present Memphis Special and will handle sleeping cars between Knoxville, Chattanooga and Memphis.

Operating the Speedsters

The high-speed streamliners have brought the cities of this country much closer together than ever before, not only because of their own fast schedules but also because of the trend they started toward higher speeds throughout railway service. Many modernized trains now operate throughout the country at high speeds, as dealt with in another article, and standard steam trains have also been speeded up in the general schedule improvements. The over-the-road operation of the streamliners has now ceased to be experimental and has settled down into a routine procedure. The handling of such trains at intermediate stops has been materially speeded up by modern car washing and servicing methods, and by the use of electric "scooter" trucks to speed up the handling of baggage, mail and express.

An example of the growing ramifications of fast operations is supplied by the Santa Fe. It is now possible to leave Chicago at 9:30 in the morning on the streamlined Kansas Cityan, change to the streamlined Tulsan at Kansas City and arrive at Tulsa, 707 miles from Chicago, in time for a good night's sleep; or the passenger may leave Chicago on the same train and, without change, arrive in Oklahoma City shortly after midnight, a run of more than 800 miles. Other streamliners may

The Milwaukee's Pride — One of the Hiawatha Fleet

make more mileage in one day, but none serves two important centers so far apart with a comfortable one day's run between breakfast and bedtime. The Santa Fe also supplied one of the outstanding traffic records of the year when, on January 1, 1940, more than 600 passengers were handled from Kansas City to Chicago on a single train, the Chicagoan, this normal 5-car train being increased to 15 cars for the occasion and powered by three Diesel-electric units. The run was made on time.

An example of the speed possible with the streamliners is to be found on the Burlington. This road has 20 Zephyr runs designated by individual train numbers, of which two are local runs, averaging a stop every 7.1 miles. Including these local groups, the average miles per hour for all of the 20 trains is 57, which is brought well over 60 m. p. h. for 18 runs, if the locals are excluded. The 57 m. p. h. figure represents 8,441 miles of Zephyr operation daily in 147 hr. 58 min. The fastest run is from Chicago to St. Paul, 427 miles, in 6 hr., or 71.1 m. p. h. average overall speed, with an average distance of 53.4 miles between stops.

Mass Transportation

In these troublous times, no discussion of passenger operations is complete without some reference to the railways' ability to handle mass transportation in case of emergency. Actually, as pointed out by Vice-President Deasy, of the Pennsylvania, such "emergencies" in mass transportation are of fairly frequent recurrence in railway operation at any time. He cited the following examples:

"At the Notification Day ceremonies for Wendell Willkie, the Pennsylvania handled 58 special trains and a round trip movement of nearly 35,000 passengers in and out of Elwood, Ind., within a space of about 14 hours. These people came from all directions of the compass and from points up to 800 miles away.

"Every clear and inviting week-end of the summer we carry to and from the seashore resorts of Southern New Jersey 100,000 or more passengers—50,000 to the beaches and 50,000 back—involving the operation of nearly 300 trains, and mostly concentrated in less than 36 hr. from Saturday noon to Sunday evening. This is duplicated by the week-end movements to and from Long Island resorts and is measurably approached by the great treks to and from the Northern New Jersey vacation points.

Over the recent Labor Day holiday, in our eastern seaboard territory alone, we carried three quarters of a million people within a four-day period. To transport them required about 2,000 trains shuttling between the cities of New York, Philadelphia, Baltimore and Washington, the summer resort territory of the North Atlantic coast and points to the West and South.

At the Pennsylvania station in New York City, more than 69,600,000 passengers arrived and departed during 1939, an average of more than 190,000 a day, or one and one-third million a week. There have been some weeks in which one and three-quarter million passengers used this station, and they traveled on trains arriving and departing from 27 states of the Union and two provinces of Canada. These great civilian mass movements are all army-size, some of them more than army-size. They are concentrated for the most part into shorter periods than army movements ordinarily require and, except in the case of the Pennsylvania station, they are movements over only one railroad out of many in the country.

"Within the last few weks the nation has witnessed an impressive demonstration of actual capacity to move troops rapidly by rail. The Regular Army and National Guard training maneuvers in northern New York, Wisconsin, Louisiana, Minnesota and Washington involved the assembling of 150,000 men from every state in the Union, traveling over practically every Class I railroad. In one period of three days, 105,000 men were moved by rail, which considerably exceeded in volume anything carried out in the most active period of the first World War, when this nation mobilized a total of 4,000,000 soldiers and sent 2,000,000 of them overseas. As an illustration of the requirements which such movements place upon individual lines, for the New York maneuvers the Pennsylvania furnished 20 trains and carried 8,247 men and their equipment, and for the Wisconsin maneuvers, 14 trains carrying 5,177 soldiers and equipment. The mass civilian movements which we are frequently called upon to handle are on considerably larger scales."

The Canadian National High-Speed Locomotives Are of Striking Design

Pullman Progress

According to the latest figures available, 401 new lightweight, streamlined Pullman sleeping cars are being operated on the various newly equipped trains. There are 53 more such cars now in various stages of construction which will be put into service as completed. Among recent outstanding developments along these lines was a complete renovation of the Twentieth Century and the Broadway limiteds with new sleeping, lounge and observation cars, replacing the equipment installed new in these extra-fare trains in June, 1938, which latter cars are now to be used on the Commodore Vanderbilt and the General respectively. As a matter of fact, the use of new, streamlined Pullman equipment on many of the trains of the Pennsylvania and the New York Central, coupled with the purchase of new diners and other railway-owned equipment, has progressed to such an extent that an entire fleet of trains on both roads is completely modernized and consists almost entirely of new, stream-

lined equipment. This trend is evident on many other railways throughout the country, the new all-Pullman Arizona Limited of the C. R. I. & P.-S. P. being another extra-fare train about to be installed.

A marked characteristic of Pullman progress has been the vast increase in the number of rooms available. The old-style drawing rooms and compartments, which were formerly the only room space available, have shown a decline, but this is far more than offset by the increase in the newer types of accommodation, such as bedrooms, duplex rooms and roomettes. The popularity of the new services was attested in a recent period when the availability of roomettes was increased 19.6 per cent and the sale of this type of accommodation increased 19.3 per cent.

A statement showing the trend in Pullman accommodation for the last two five-year periods follows:

	November 1929	April 1935	October 1940
Drawing-rooms	7,546	6,980	5.063
Compartments	4,959	4,609	4,370
Single Bedrooms	556	587	633
Double Bedrooms	195	729	3,451
Duplex Single Rooms	...	32	252
Master Bedrooms	...	...	12
Roomettes	...	...	2,036
	13,256	12,937	15,817

The single bedrooms were first operated between Chicago and Detroit on April 2, 1927, and the duplex single rooms between New York and Akron on January 30, 1932, the roomettes between New York and Pittsburgh on August 12, 1937, and the master bedrooms between Chicago and New York on June 15, 1938.

Other recent refinements in design have been guard ropes for single-occupancy sections, lightweight full-vitreous washstands, improved stainless-steel folding washstands, synthetic interior enamels, non-breakable rubber buttons for berth curtains, metal end-door nameplates, new four-wheel tracks with helical bolster springs and one-way shock absorbers, stainless steel hoppers, new folding hoppers, new shaving mirrors and new lighting, including fluorescent lighting.

A development of the last year that may be revolutionary in its scope has been the installation of two sleeping cars for coach passengers. Space in these cars, which is sold to passengers holding coach tickets at no increase in railroad fare and at a material decrease in the Pullman fare for standard accommodations, consists of 3-berth and 6-berth rooms, each equipped with a washstand, which are transformed into comfortable sitting rooms for daytime service. With only two such cars available, the operation has naturally been largely experimental. However, the results have been eminently successful and two more such cars are now being constructed.

The coach-sleepers contain 10 compartments, with an entrance from a side aisle, the berths being in tiers of three, the lower being formed by the seat back, the middle being raised against the upper during the day, and the upper being stationary. The berths are longer and narrower than those on the standard car.

The first two cars were placed in weekly round-trip service between Chicago and St. Paul on the Burlington, thence to Seattle on the Empire Builder of the Great Northern and the North Coast Limited of the Northern Pacific on June 29, 1940. The results of the first 13 trips showed an average occupancy of 38.6 passengers per car: 13.2 men, 20.6 women and 1.4 mixed family groups. A study of the mode of travel that would have been used if coach-sleeper service had not been available shows that 32.3 per cent would have used tourist sleepers, 8.5 per cent standard sleepers, 42.2 per cent ordinary coaches and 17 per cent would not have used the railway at all. These berths were sold only for the complete journey, so that tourist berth figures must be correlated to take into account the large number of transcontinental passengers who use coaches by day and tourist sleepers by night.

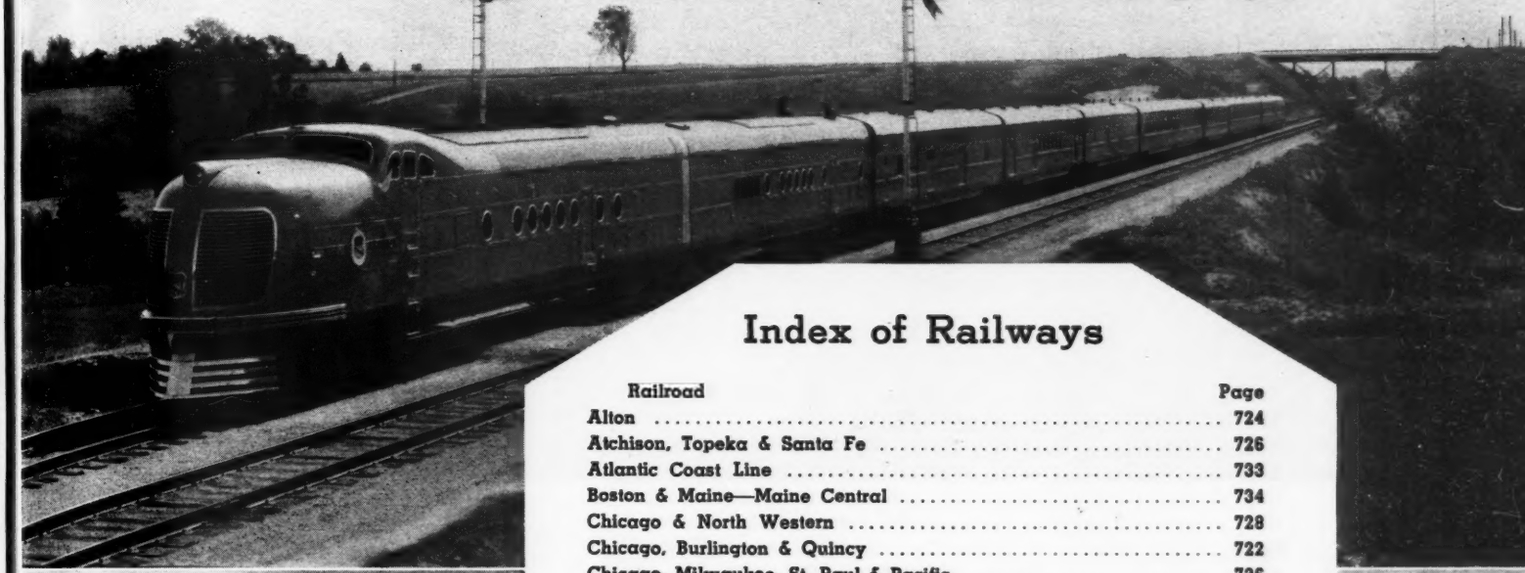
The complete and accurate questionnaire also indicated that 711 passengers favored the new service, while 19 expressed themselves as being unfavorable.

On August 10, these coach-sleepers were transferred to weekly service between Chicago and Oakland, Calif., on the Exposition Flyer of the C. B. & Q.-D. & R. G. W.-W. P., and the Pacific Limited of the C. & N. W.-U. P.-S. P., in which service they averaged 38.2 passengers per trip for 17 trips, and on September 9 they were placed in daily overnight service between Chicago and Kansas City on the Ranger of the Santa Fe, with equally good results from traffic and passenger reaction standpoints. The same road is operating these two cars through November in daily overnight service between Kansas

(*Continued on page 763*)

The Green Diamond Pulling in to Chicago

March of the Streamliners



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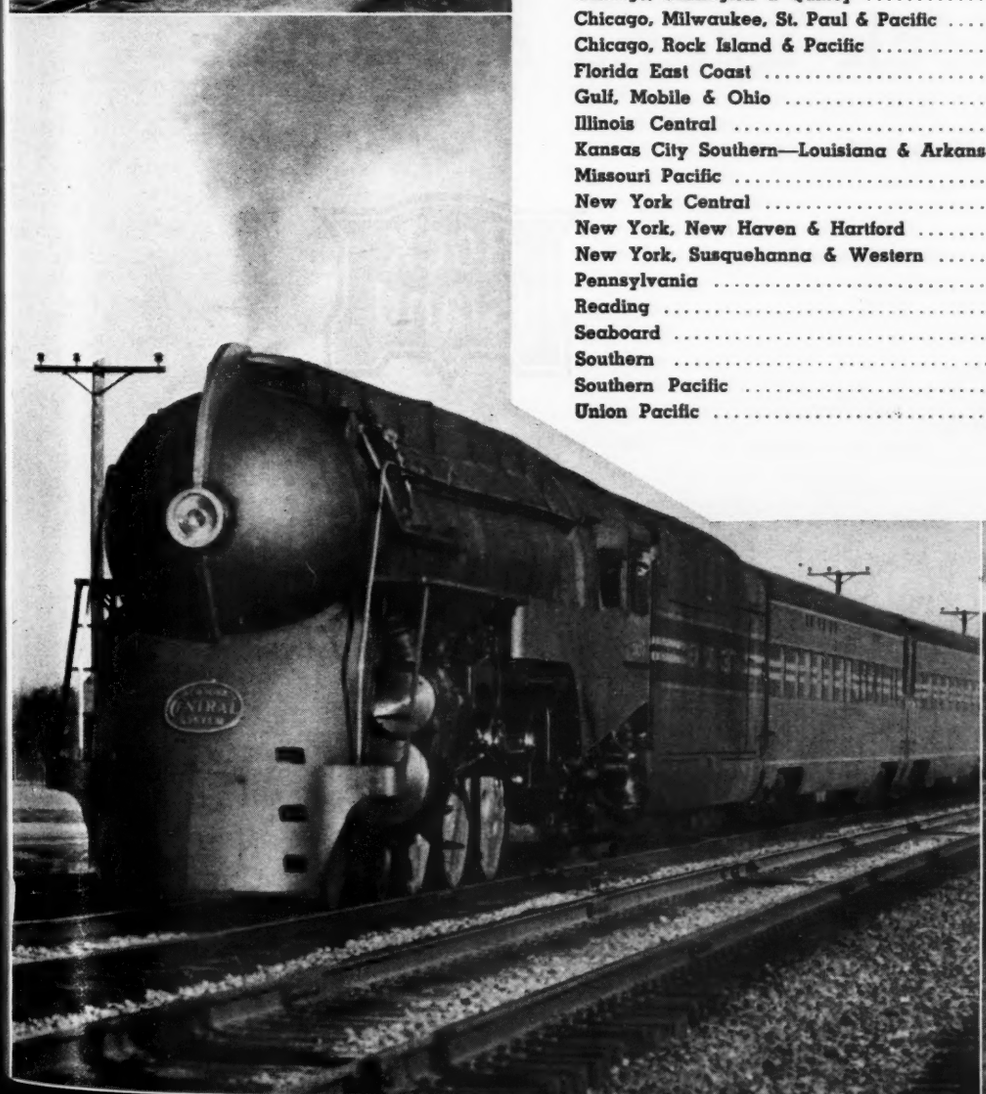
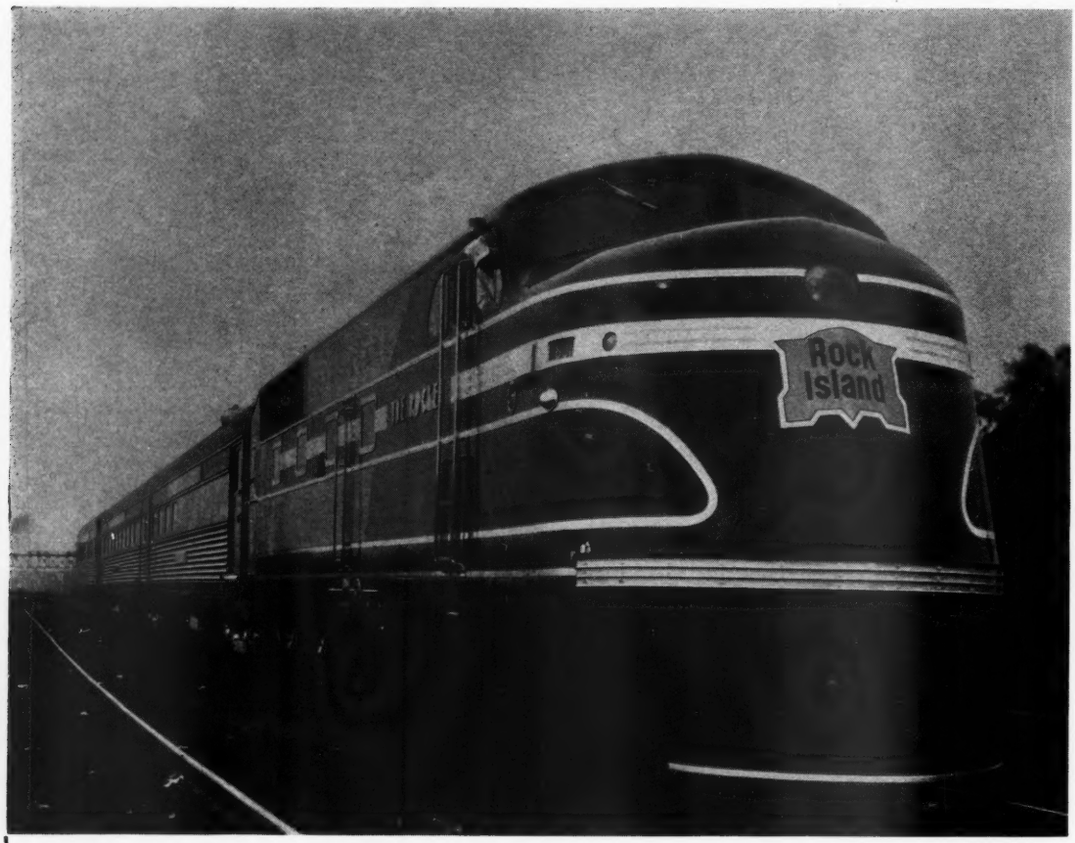




Chicago, Rock Island & Pacific

Rocky Mountain Rockets

(2 trains)

Weight of train:	1,093,640 lb.
Consist:	8 cars—1 power unit; 1 baggage; 1 mail-chair; 1 chair; 1 diner; 1 compartment - open section 1 roomette-open section; 1 bedroom-observation.
Placed in service:	November 12, 1939.
Operated between:	Chicago-Kansas City and Denver-Colorado Springs
Daily mileage per train:	1,367
Overall scheduled speed:	56.3 m.p.h.

Statistics

(November 12, 1939 to August 31, 1940)

Total train miles:	708,593
Total passengers:	108,184
Total passenger miles:	35,922,500
Average passengers per train:	56.95
Revenue per train mile:	$1.1956

Remarks: A streamlined section of this train comprising 1 power unit, 1 coach and 1 all-room sleeper is operated between Kansas City and Belleville where it connects with the Chicago-Denver section. Car to car transfer en route to and from Colorado Springs.

Kansas City-Dallas Rockets

(2 trains)

Weight of train:	580,984 lb.
Consist:	5 cars—1 power unit; 1 baggage mail; 1 baggage-dinette; 1 chair; 1 chair-observation-lounge.
Placed in service:	November 15, 1938
Operated between:	Kansas City-Dallas via Oklahoma City (1 trip in each direction daily)
Daily mileage per train:	677
Overall scheduled speed:	52.8

Statistics

(November 15, 1938 to August 31, 1940)

Total train miles:	888,241
Total passengers:	199,127
Total passenger miles:	44,519,580
Average passengers per train:	50.12
Revenue per train mile:	$1.042

Chicago-Des Moines Rocket

Weight of train:	572,600 lb.
Consist:	5 cars—1 power unit; 1 baggage-dinette; 2 chair; 1 observation-lounge.
Placed in service:	September 26, 1937
Operated between:	Chicago and Des Moines (1 round trip daily)
Daily mileage:	716
Overall scheduled speed:	59.7

Statistics

(September 26, 1937 to August 31, 1940)

Total train miles:	766,134
Total passengers:	312,824
Total passenger miles:	77,573,430
Average passengers per train:	101.25
Revenue per train mile:	$1.8226

Chicago-Peoria Rocket

Weight of train:	572,600 lb.
Consist:	5 cars—1 power unit; 1 baggage-dinette; 2 chair; 1 observation-lounge.
Placed in service:	September 19, 1937
Operated between:	Chicago and Peoria (2 round trips daily)
Daily mileage:	644
Overall scheduled speed:	62.3 m.p.h.

Statistics

(September 19, 1937 to August 31, 1940)

Total train miles:	694,232
Total passengers:	434,590
Total passenger miles:	63,502,388
Average passengers per train:	91.47
Revenue per train mile:	$1.6722

Kansas City-Minneapolis Rockets

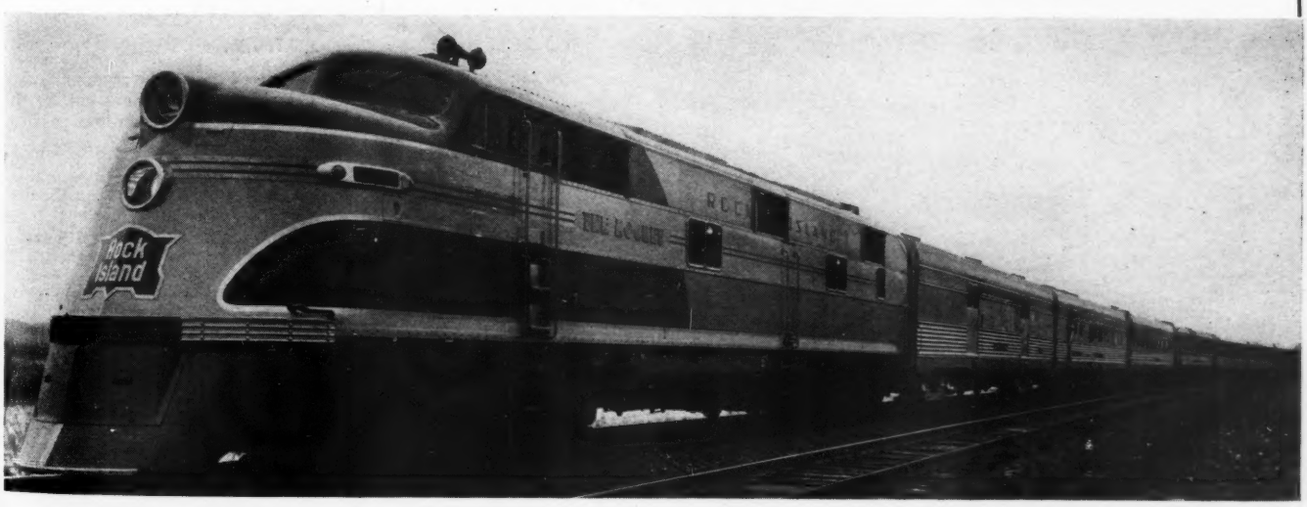
(2 trains)

Weight of train:	500,400 lb.
Consist:	4 cars—1 power unit; 1 baggage-dinette; 1 chair; 1 chair-observation-lounge.
Placed in service:	September 29, 1937
Operated between:	Kansas City and Minneapolis (Each train one way daily)
Daily mileage per train:	489
Overall scheduled speed:	53.8 m.p.h.

Statistics

(September 29, 1937 to August 31, 1940)

Total train miles:	1,044,655
Total passengers:	251,740
Total passenger miles:	73,457,300
Average passengers per train:	70.32
Revenue per train mile:	$1.2657



Burlington Route

Pioneer Zephyr

Weight of train:	302,300 lb.
Consist:	4 cars—1 power-baggage-mail; 1 baggage; 1 dinette-coach; 1 coach-lounge
Placed in service:	(a) November 11, 1934 (1st run) (b) April 30, 1940 (transferred, see next item)
Operated between:	(a) Lincoln-Omaha and Kansas City (1 round trip daily) (b) St. Louis and Burlington (1 round trip daily)
Daily mileage:	(a) 500, (b) 442
On time percentage:	(a) 93.8, (b) 92.6 per cent

Statistics

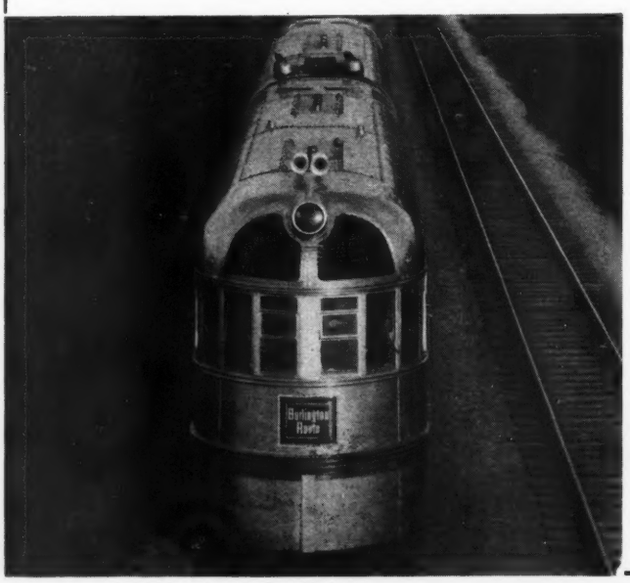
(November 11, 1934 to August 31, 1940)

Total train miles:	1,077,811
Total passengers:	325,199
Total passenger miles:	45,159,288
Average passengers per train:	42
Revenue per train mile:	$1.0917

Remarks: Statistics are cumulative and include original operation on first run.

Sam Houston Zephyr

Weight of train:	271,948 lb.
Consist:	4 cars—1 power-baggage-coach; 1 lunch counter-dinette-coach; 1 coach; 1 coach-parlor-lounge
Placed in service:	(a) April 21, 1935 as 1 of original Twin Zephyrs (b) October 1, 1936 as Sam Houston Zephyr



Chicago, Burlington

Operated between:	(a) Chicago and St. Paul-Minneapolis (b) Fort Worth-Dallas and Houston (1 round trip daily over each route)
Daily mileage:	(a) 874, (b) 566
Overall scheduled speed:	(a) 65.5, (b) 57.4 m.p.h.
On time percentage:	(a) 90.8, (b) 97.3 per cent

Statistics

(April 21, 1935 to August 31, 1940)

Total train miles:	1,256,622
Total passengers:	264,475
Total passenger miles:	66,910,792
Average passengers per train:	53
Revenue per train mile:	$1.0071

Remarks: Statistics are cumulative and include original operation on first run.

Texas Rocket

Weight of train:	288,700 lb.
Consist:	4 cars—1 power-baggage-coach; 1 lunch counter-dinette-coach; 1 coach; 1 coach-parlor-lounge
Placed in service:	(a) April 21, 1935 as 1 of original Twin Zephyrs (b) December 20, 1936 as Ozark State Zephyr (c) November 3, 1938 as Texas Rocket
Operated between:	(a) Chicago and St. Paul-Minneapolis (b) St. Louis and Kansas City (c) Fort Worth-Dallas and Houston (1 round trip daily over each route)
Daily mileage:	(a) 874, (b) 558, (c) 566
Overall scheduled speed:	(a) 65.5, (b) 55.8 (c) 57.4 m.p.h.
On time percentage:	(a) 90.8, (b) 95.5, (c) 94.9 per cent

& Quincy

Statistics

(April 21, 1935 to August 31, 1940)

Total train miles:	1,233,064
Total passengers:	249,170
Total passenger miles:	64,388,915
Average passengers per train:	52
Revenue per train mile:	$0.9870

Remarks: Statistics are cumulative and include operations over the 3 runs indicated.

Denver Zephyrs

(2 trains)

Weight of train:	1,452,345 lb. (normal consist)
Normal consist: (Subject to change with traffic conditions)	13 cars—2 power units; 1 auxiliary power unit-railway post office-baggage; 1 crew quarters-baggage-tavern; 2 coaches; 1 diner; 3 sleepers; 1 bedroom-compartment; 1 bedroom-roomette; 1 parlor-buffet-lounge. (During summer train carries 1 additional car, dinette-coach — total weight then 1,563,545 lb.)
Placed in service:	November 8, 1936
Operated between:	Chicago and Denver (1 train in each direction daily)
Daily mileage per train:	1,036
Overall scheduled speed:	64.6 m.p.h. westbound 66.5 m.p.h. eastbound
On time percentage:	91.3 per cent

Statistics

(November 8, 1936 to August 31, 1940)

Total train miles:	2,890,286
Total passengers:	589,802
Total passenger miles:	354,526,374
Average passengers per train:	123
Revenue per train mile:	$2.7370

Twin Zephyrs

(2 trains)

Weight of train:	759,420 lb. (normal consist)
Consist: (Subject to change with traffic conditions)	8 cars—1 power unit; 1 auxiliary power unit-baggage-tavern; 2 coaches; 1 coach-dinette; 1 diner; 1 parlor; 1 parlor-lounge
Placed in service:	December 18, 1936 (replacing original Twin Zephyrs assigned to other service)
Operated between:	Chicago and St. Paul-Minneapolis (1 round trip daily for each train)
Daily mileage per train:	874
Overall scheduled speed:	65.5 m.p.h.
On time percentage:	90.8 per cent

Statistics

(December 18, 1936 to August 31, 1940)

Total train miles:	2,350,626
Total passengers:	770,342
Total passenger miles:	225,593,424
Average passengers per train:	96
Revenue per train mile:	$1.8178

Mark Twain Zephyr

Weight of train:	246,540 lb.
Consist:	3 cars—1 power unit-railway post office-baggage; 1 dinette-coach; 1 coach-parlor-lounge
Placed in service:	(a) October 28, 1935 (1st run) (b) September 25, 1938 (transferred, see next item)
Operated between:	(a) St. Louis and Burlington (b) St. Louis and Kansas City (1 round trip daily)
Daily mileage:	(a) 442, (b) 558
Overall scheduled speed:	(a) 37.8, (b) 55.8 m.p.h.
On time percentage:	(a) 88.8, (b) 95.5 per cent

Statistics

(October 28, 1935 to August 31, 1940)

Total train miles:	941,044
Total passengers:	242,348
Total passenger miles:	36,641,512

(Statistics continued on next page)

Chicago, Burlington & Quincy

Average passengers per train:	40
Revenue per train mile:	$0.9272

Remarks: Statistics are cumulative and include original operation on first run.

General Pershing Zephyr

Weight of train:	806,605 lb. (normal consist)
Normal consist: (Subject to change with traffic conditions)	5 cars—1 power unit; 1 baggage; 1 coach; 1 sleeper; 1 diner-parlor-lounge
Placed in service:	April 30, 1939
Operated between:	St. Louis and Kansas City (1 round trip daily)
Daily mileage:	558
Overall scheduled speed:	55.8 m.p.h.
On time percentage:	81.2 per cent

Statistics

(April 30, 1939 to August 31, 1940)

Total train miles:	312,408
Total passengers:	57,420
Total passenger miles:	12,397,917
Average passengers per train:	40
Revenue per train mile:	$0.9016

Silver Streak Zephyr

Weight of train:	528,320 lb. (normal consist)
Normal consist: (Subject to change with traffic conditions)	4 cars—1 power unit-baggage; 1 railway post office-baggage; 1 coach; 1 diner-parlor-lounge
Placed in service:	April 15, 1940
Operated between:	Lincoln-Omaha and Kansas City (1 round trip daily, replaced Pioneer Zephyr)
Daily mileage:	502
Overall scheduled speed:	60 m.p.h. Lincoln-Omaha 50.9 m.p.h. Omaha-Kansas City
On time percentage:	87.2 per cent

Statistics

(April 15, 1940 to August 31, 1940)

Total train miles:	65,814
Total passengers:	18,556
Total passenger miles:	2,061,842
Average passengers per train:	31
Revenue per train mile:	$1.0162

Texas Zephyrs

(Colorado & Southern-Fort Worth & Denver City)

(2 trains)

Consist:	9 cars—1 power unit; 1 mail-express; 1 baggage-coach; 2 chair; 1 diner-lounge; 3 sleepers
Placed in service:	August 23, 1940
Operated between:	Denver and Fort Worth-Dallas
Daily mileage per train:	834
Overall scheduled speed:	47 m.p.h. southbound 44.5 m.p.h. northbound

Alton

Abraham Lincoln
Ann Rutledge

(2 trains)

Weight of train:	820,300 lb.
Consist:	8 cars and locomotive—1 baggage-smoker; 2 chair; 1 diner-tavern-counter; 1 lounge; 2 parlor; 1 parlor-observation. (The Ann Rutledge northbound carries a full diner in addition to the diner-tavern-counter.)
Placed in service:	Abraham Lincoln: July 1, 1935 Ann Rutledge: July 26, 1937
Operated between:	Chicago and St. Louis (1 round trip daily—each train).
Daily mileage:	564
Overall scheduled speed:	57.8

Statistics

(July 1, 1935 to June 1, 1940)

Total train miles:	1,635,448
Total passengers:	962,914
Total passenger miles:	202,432,496
Average passengers per train:	130
Revenue per train mile:	$2.79

Pennsylvania

Broadway Limited

(2 trains)

Weight of train:	971,600 lb. (cars only)
Consist:	8 cars—1 mail; 1 baggage, 1 roomette; 1 bedroom-bar-lounge; 1 diner; 1 compartment-bedroom-drawing room; 1 bedroom; 1 master-bedroom . buffet - lounge - observation.
New trains placed in service:	June 15, 1938 New York and Chicago (1 trip each direction daily)
Daily mileage per train:	907.7
Overall scheduled speed:	56.7 m.p.h.
Train miles:	1,569,242 (June 15, 1938 to September 30, 1940)

Remarks: In the period since streamlined equipment was introduced (June 15, 1938) patronage on the Broadway Limited has increased approximately 37 per cent over the previous average.

The Pennsylvania also operates a fleet of luxury trains consisting of new streamlined equipment, with the exception of one or two cars. Such trains have shown consistent increases in patronage since the new equipment was added.

Illinois Central

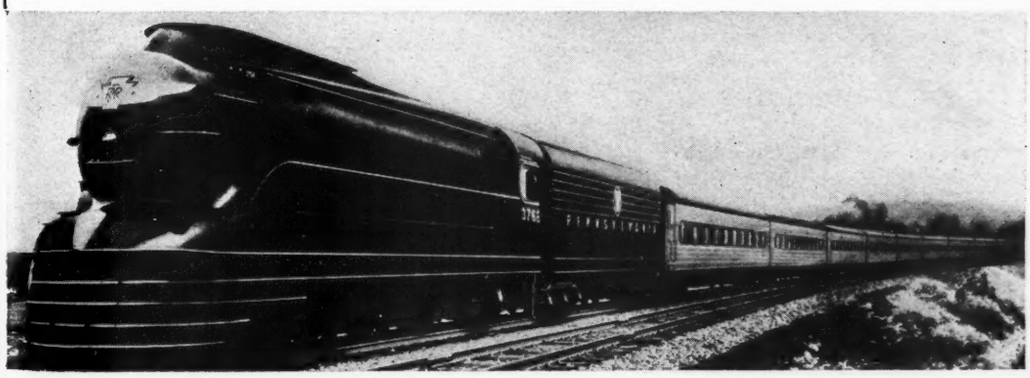
Green Diamond

Weight of train:	460,000 lb.
Consist:	5 cars—1 power unit; 1 mail-baggage-express; 1 coach; 1 coach-diner; 1 diner-lounge.
Placed in service:	May 17, 1936
Operated between:	Chicago and St. Louis (1 round trip daily)
Daily mileage:	588.4
Overall scheduled speed:	59.8 m.p.h.
On time percentage	99 per cent

Statistics

(May 17, 1936 to June 30, 1940)

Total train miles:	809,289
Total passengers:	241,909
Total passenger miles:	50,370,426
Average passengers per train:	62.24
Revenue per train mile:	$1.46



Atchison, Topeka & Santa Fe

The Tulsan

Weight of train (cars only):	550,000 lb.
Consist:	6 cars—1 power unit; 1 baggage-mail; 2 coaches; 1 diner; 1 parlor-observation.
Placed in service:	December 10, 1939
Operated between:	Kansas City and Tulsa (round trip daily)
Daily mileage:	512
Overall scheduled speed:	53 m.p.h.

Super Chiefs

(2 trains)

Weight of train (cars only):	1,028,000 lb.
Consist:	11 cars—2 power units; 1 club-baggage; 1 club-lounge; 1 diner; 5 sleepers; 1 sleeper-observation
Placed in service:	1st train—June 15, 1937 2nd train—February 22, 1938
Operated between:	Chicago and Los Angeles (1 round trip per train per week)
Weekly mileage per train:	4,456
Overall scheduled speed:	56.6 m.p.h.

Chiefs

(6 trains)

Maximum weight of train: (cars only)	1,320,000 lb.
Consist:	11 cars—1 mail; 1 baggage-mail; 1 club-baggage; 1 club-lounge; 1 diner; 5 sleepers; 1 sleeper-observation. (Additional light-weight sleeping cars are added as required.)
Placed in service:	February 22, 1938. (Date light-weight equipment replaced former standard trains)
Operated between:	Chicago and Los Angeles (Each train in turnaround service)
Average daily mileage per train:	743
Overall scheduled speed:	47.6 m.p.h.

El Capitan

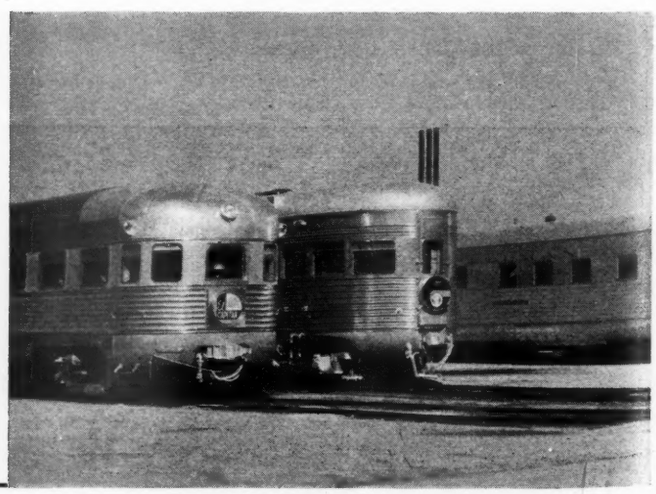
(2 trains)

Weight of train (cars only):	626,000 lb.
Consist:	7 cars—1 power unit; 1 baggage-dormitory-chair; 3 chair; 1 club-chair; 1 lunch-counter-diner. (Consist increased in summer season by 2 or 3 chair cars and 1 diner as required. Additional power unit then added.)
Placed in service:	February 22, 1938
Operated between:	Chicago and Los Angeles (1 round trip per train per week)
Weekly mileage per train:	4,456
Overall scheduled speed:	56.6 m.p.h.

Golden Gates

(2 trains)

Weight of train (cars only):	622,000 lb.
Consist:	7 cars—1 power unit; 1 baggage-chair; 2 chair; 1 chair-club-bar;



	1 lunch-counter-diner; 1 chair-observation.
Placed in service:	July 1, 1938
Operated between:	Oakland and Bakersfield (1 round trip daily for each train in connection with co-ordinated bus service—San Francisco to Los Angeles.)
Daily mileage per train:	626
Overall scheduled speed:	56.1 m.p.h.

Chicagoan
Kansas Cityan

(2 trains)

Weight of each train:	620,000 lb.
Consist:	7 cars—1 power unit; 1 baggage-mail; 2 chair cars; 1 club chair; 1 diner; 1 parlor-observation. On week-ends, 1 extra chair car added to each train.
Placed in service:	April 17, 1938—Chicago to Wichita
Operated between:	Chicago and Oklahoma City (1 trip in each direction per train daily)
Daily mileage per train:	850
Overall scheduled speed:	50.6 m.p.h.

San Diegan

Weight of train (cars only):	694,000 lb.
Consist:	8 cars—1 power unit; 1 baggage-mail; 4 chair; 1 tavern-lunch counter; 1 parlor-observation (2 or 3 chair cars are added for week-end traffic)
Placed in service:	March 27, 1938
Operated beween:	Los Angeles and San Diego (2 round trips daily)
Daily mileage:	512

Seaboard

Silver Meteors

(3 trains)

(Pennsylvania-Richmond, Fredericksburg & Potomac)

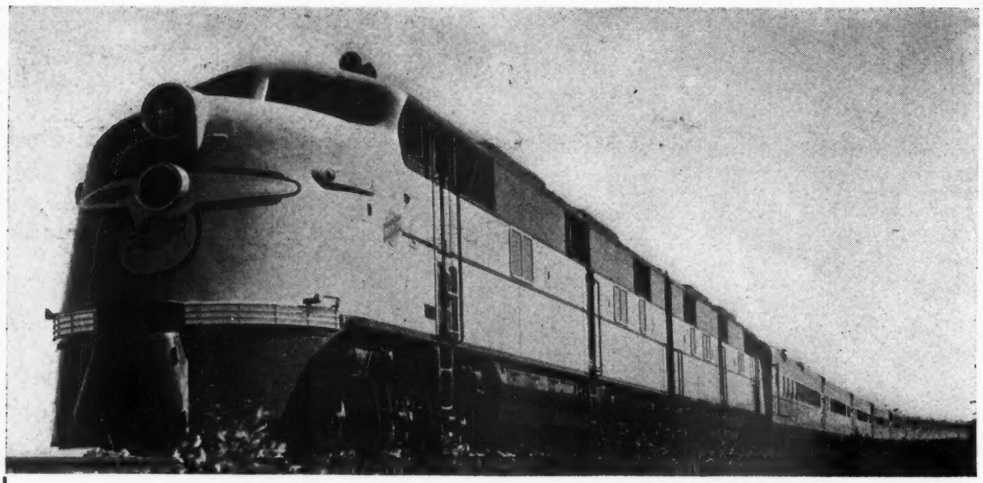
Weight of train:	1,055,934 lb.
Consist:	8 cars—1 power unit, 1 coach-baggage-dormitory; 1 coach-tavern-lounge; 1 diner; 3 coaches; 1 coach-observation-lounge; (On December 1, 1940 the consist will be doubled to include 16 cars—2 power units; 2 coach-baggage; 7 coaches; 1 coach-tavern-lounge; 2 diners; 2 coach-observation lounge;—600 per cent increase in equipment in 19 months)
Placed in service:	February 2, 1939—as 1 train December 1, 1939—2 additional trains added
Operated between:	New York and Miami—St. Petersburg (daily service)
Daily mileage:	3,055 (3 trains)
Overall scheduled speed:	55.5 m.p.h.

Statistics

(February 2, 1939 through June 30, 1940)

Total train miles:	907,356*
Total passengers:	177,836*
Average passengers per train:	283*
Revenue per train mile:	$1.78*

Remarks:* Statistics apply to operation over Seaboard rails only.



Chicago & North Western

400

(2 trains)

Weight of train:	1,609,000 lb.
Consist:	12 cars—2 power units; 1 baggage-bar-lunch; 4 coaches; 1 diner, 3 parlor; 1 observation-lounge.
Placed in service:	September 24, 1939
Operated between:	Chicago and St. Paul-Minneapolis (1 train daily in each direction)
Daily mileage per train:	419
Overall scheduled speed:	65.38 m.p.h.

Statistics

(July 1, 1939 to June 30, 1940)

Total train miles:	315,799
Total passengers:	206,596
Total passenger miles:	49,996,230
Average passengers per train:	274
Revenue per train mile:	$3.235

Remarks: Statistics for the yearly period include operation of steam train service for which the streamliners were substituted.

Union Pacific

City of Salina

Weight of train:	274,660 lb.
Consist:	3 cars — 1 power-baggage; 1 coach; 1 coach-buffet
Placed in service:	January 31, 1935
Operated between:	Salina, Kan., to Kansas City, Mo. Kansas City, Mo., to Topeka, Kan., and return Kansas City to Salina
Daily mileage:	560

C. & N. W. - U. P.

City of Portland

Weight of present train:	1,064,300 lb.
Consist:	10 cars—2 power units; 1 auxiliary mail-baggage; 1 dormitory-kitchen; 1 diner-lounge; 3 sleeping cars; 1 coach; 1 coach-buffet.
Placed in service:	Original 7-car train, weight 597,280 lb., in operation June 6, 1935, to July 26, 1935. Operation renewed February 6, 1936, to March 27, 1939, when present 10-car train took over service.
Operated between:	Chicago and Portland, Ore. (Five round trips per month)
Mileage:	22,720 miles per month
Overall scheduled speed:	64.19 m.p.h. (Over C. & N. W. rails only)

Statistics

(July 1, 1939 to June 30, 1940)

Total train miles:	58,560*
Total passengers:	11,035*
Total passenger miles:	5,087,135*
Average passengers per train:	92*
Revenue per train mile:	$1.685*

Remarks:* Statistics cover operation over Chicago & North Western only.

City of Los Angeles

(17-car train)

Weight of train:	2,226,000 lb.
Consist:	17 cars—3 power units; 1 auxiliary-baggage-dormitory car; 2 chair cars; 1 diner-kitchen; 1 diner; 1 club car; 2 sleeping cars; 2 drawing room-compartment cars; 1 roomette car; 2 bedroom cars; 1 observation lounge.

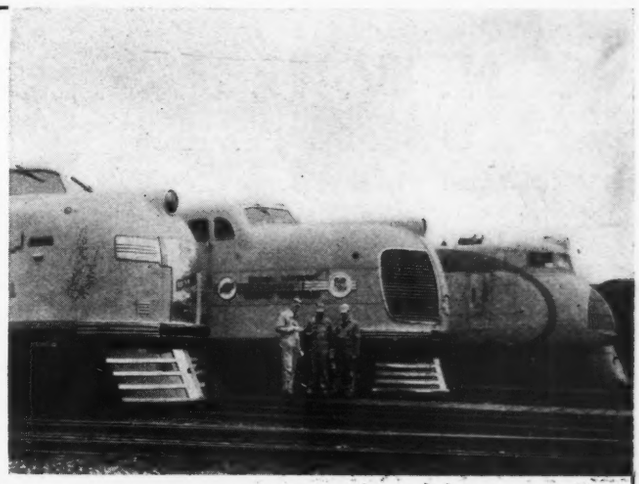
Placed in service:	December 27, 1937
Operated between:	Chicago and Los Angeles (5 round trips per month)
Mileage:	22,995 miles per month
Overall scheduled speed:	64.19 m.p.h. (Over C. & N. W. rails only)

Statistics

(July 1, 1939 to June 30, 1940)

Total train miles:	58,560*
Total passengers:	14,931*
Total passenger miles:	7,047,430*
Average passengers per train:	124*
Revenue per train mile:	$3.134*

Remarks:* Statistics cover operation over Chicago & North Western only.



City of Los Angeles

(13-car train)

Weight of train:	1,260,000 lb.
Consist:	13 cars—2 power units; 1 auxiliary baggage-dormitory car; 2 coaches; 1 diner-kitchen; 1 diner; 3 sleeping cars; 2 bedroom-compartment cars; 1 observation lounge.
Placed in service:	May 15, 1936
Operated beween:	Chicago and Los Angeles (5 round trips per month)
Mileage:	22,995 miles per month
Overall scheduled speed:	64.19 m.p.h. (Over C. & N. W. rails only)

Statistics

(July 1, 1939 to June 30, 1940)

Total train miles:	58,560*
Total passengers:	11,716*
Total passenger miles:	5,541,670*
Average passengers per train:	98*
Revenue per train mile:	$2.388*

Remarks:* Statistics cover operation over Chicago & North Western only.

City of Denver

(2 trains)

Weight of trains:	1,348,345 lb. 1,341,140 lb.
Consist of each train:	14 cars—2 power units; 1 auxiliary-baggage; 1 baggage-mail; 1 club; 2 coaches; 1 diner-lounge; 3 open section sleeping cars; 1 berth-bedroom-compartment car; 1 drawing room-compartment-bedroom-roomette car; 1 bedroom-compartment-observation car.
Placed in service:	June 18, 1936
Operated between:	Chicago and Denver (One trip in each direction daily)
Daily mileage per train:	1,048
Overall scheduled speed:	63.50 m.p.h (Over C. & N. W. rails only)

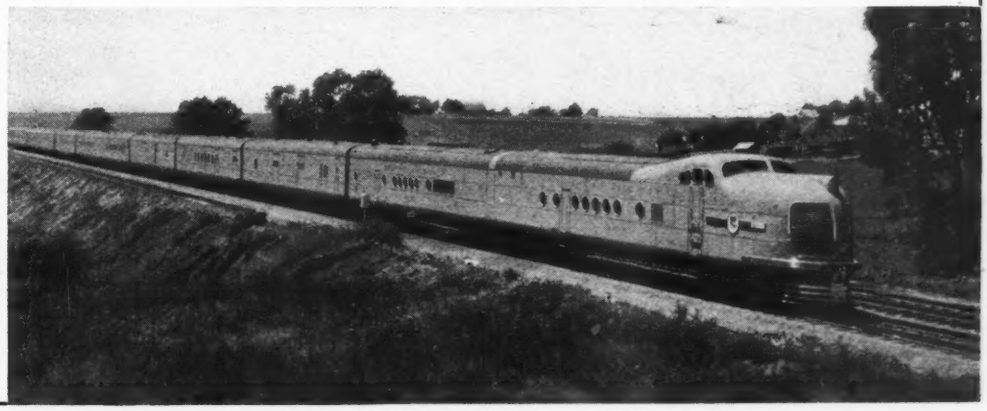
Statistics

(July 1, 1939 to June 30, 1940)

Total train miles:	357,704*
Total passengers:	97,618*
Total passenger miles:	35,630,570*
Average passengers per train:	133*
Revenue per train mile:	$2.402*

Remarks:* Statistics cover operation over Chicago & North Western only.

UNION PACIFIC
THE OVERLAND ROUTE



C. N. W.-U. P.-S. P.

City of San Francisco

Weight of train:	2,260,000 lb.
Consist:	16 cars—3 power units; 1 auxiliary-baggage-dormitory; 1 chair car; 1 dormitory-kitchen; 1 diner; 1 dormitory-club; 3 sleepers; 2 drawing room-compartment cars; 2 bedroom cars; 1 roomette car; 1 observation lounge.
Placed in service:	June 14, 1936
Operated between:	Chicago and San Francisco (5 round trips per month)
Mileage:	22,600 miles per month
Overall scheduled speed:	64.19 m.p.h. (Over C. & N. W. rails only)

Statistics

(July 1, 1939 to June 30, 1940)

Total train miles:	58,560*
Total passengers:	15,604*
Total passenger miles:	7,536,730*
Average passengers per train:	130*
Revenue per train mile:	$3.485*

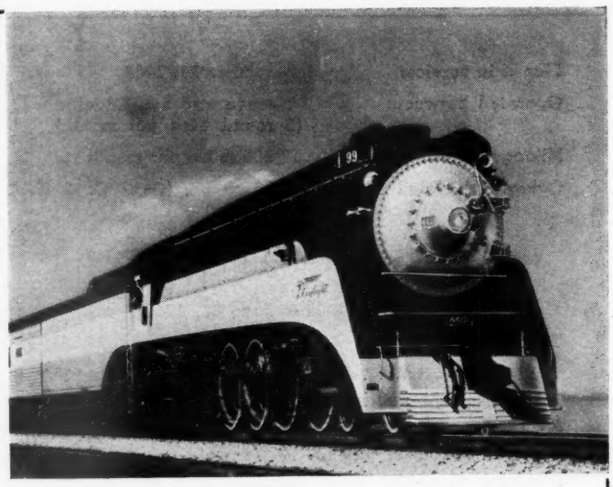
Remarks:* Statistics cover operation over Chicago & North Western only.

Southern Pacific

The Sunbeams

(2 trains)

Weight of train:	694,000 lb. (cars only)
Consist:	7 cars—1 baggage; 1 baggage-mail; 4 parlor; 1 diner-lounge-observation.
Placed in service:	September 19, 1937
Operated between:	Houston and Dallas, Texas (1 train daily in each direction)
Daily mileage per train:	264
Overall scheduled speed:	60 m.p.h.

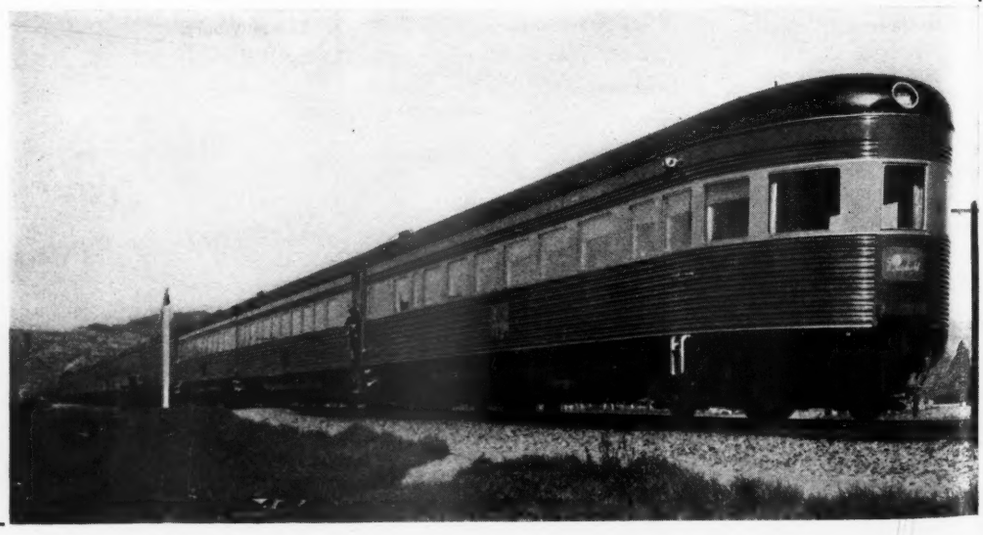


The Daylights

(4 trains)

Weight of train:	1,352,000 lb. (cars only)
Consist: Morning Daylights: (2 newer trains)	14 cars—1 chair-baggage; 7 chair; 1 tavern; 1-3 car unit comprising coffee shop, kitchen and diner; 1 parlor; 1 parlor-observation.
Noon Daylights: (2 older trains)	14 cars—1 baggage-chair; 8 chairs; 1 tavern; 1 coffee shop; 1 diner; 1 parlor; 1 parlor-observation.
Placed in service:	March 21, 1937—(2 original trains) January 10, 1940—(2 Morning Daylights)
Operated between:	San Francisco and Los Angeles
Daily mileage per train:	470
Overall scheduled speed:	49.5 m.p.h. Morning Daylights 48.7 m.p.h. Noon Daylights

Remarks: The original Daylights, with 1 train operating in each direction daily, proved so popular that on January 10, 1940—2 additional trains were added to the route and were named the Morning Daylights travelling in each direction between San Francisco and Los Angeles while the older trains were re-named the Noon Daylights. From March 21, 1937 to March 29, 1940 a single pair of Daylights carried 872,365 revenue passengers averaging 789 persons daily. For the 6-month period beginning April 1, 1940 all 4 trains have carried a total of 275,959 revenue passengers, an average of 1,508 passengers per day.



K. C. Southern-La.-Ark.

Southern Belles

(3 trains)

Weight of train:	729,000 lb. approximate (5 cars)
Consist:	5 cars, between Kansas City and Texarkana—1 power unit; 1 mail-express-baggage; 1 chair; 1 sleeper; 1 observation-lounge-diner. An additional baggage car is handled between Texarkana and Shreveport. The train comprises 8 cars, including 2 additional baggage cars and 1 sleeper between Shreveport and New Orleans.
Placed in service:	September 1, 1940
Operated between:	Kansas City and New Orleans
Daily mileage per train:	873
Overall scheduled speed:	40.5 m.p.h.

Statistics

(Month of September, 1940)

Total train miles:	52,440
Revenue per train mile:	$0.827

Missouri Pacific

The Eagles

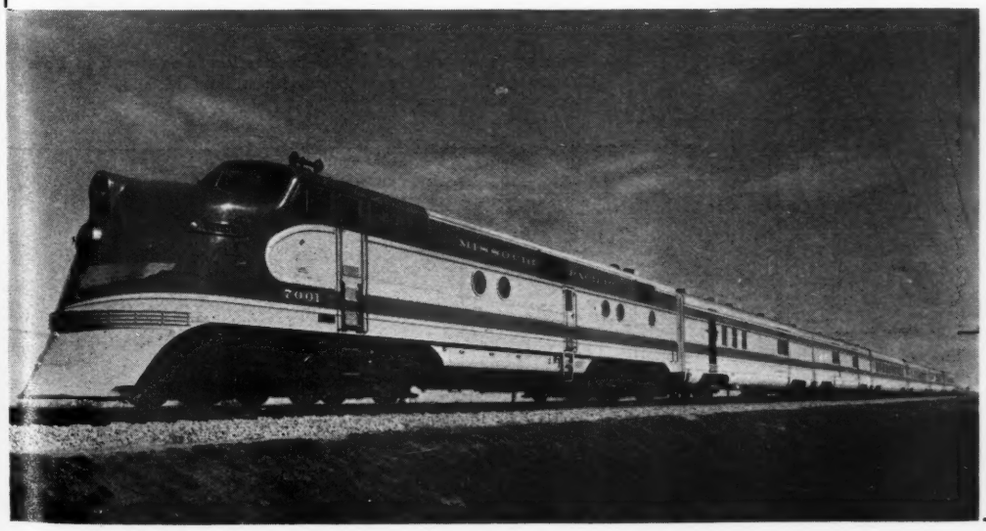
(2 trains)

Weight of train:	914,120 lb.
Consist:	7 cars—1 power unit; 1 mail-storage; 1 baggage; 1 coach; 1 deluxe coach; 1 diner-bar-lounge; 1 parlor-observation.
Placed in service:	March 10, 1940
Operated between:	St. Louis-Kansas City-Omaha
Daily mileage per train:	478
Overall scheduled speed:	53.1 m.p.h.
On time percentage:	96.3 per cent

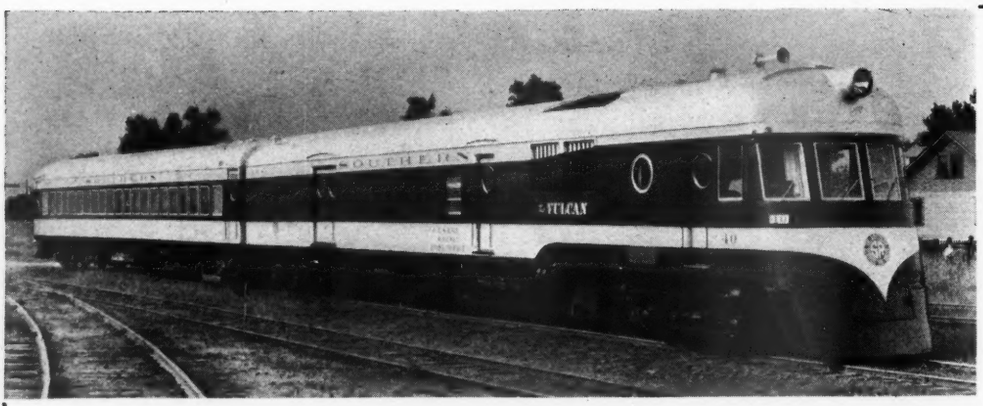
Statistics

(March 10, 1940 to September 30, 1940)

Total train miles:	195,980
Total passengers:	81,156
Total passenger miles:	1,868,400
Average passengers per train:	198
Revenue per train mile:	$1.81



MISSOURI PACIFIC LINES



THE SOUTHERN SR SERVES THE SOUTH

Southern

The Vulcans

(2 trains)

Weight of train:	340,428 lb.
Consist:	2 cars—1 power unit-mail-baggage; 1 coach
Placed in service:	August 24, 1939
Operated between:	Chattanooga and Meridian
Daily mileage per train:	591
Total train miles:	209,616—Aug. 24, 1939 to Oct. 24, 1940

The Goldenrod

Weight of train:	340,428 lb.
Consist:	2 cars—1 power unit-mail-baggage; 1 coach
Placed in service:	September 24, 1939
Operated between:	Birmingham and Mobile
Daily mileage:	528
Total train miles:	209,616—Sept. 24, 1939 to Oct. 24, 1940

The Joe Wheeler

Weight of train:	341,125 lb.
Consist:	2 cars—1 power unit-mail-baggage; 1 coach.
Placed in service:	September 29, 1939
Operated between:	Oakdale and Tuscumbia
Daily mileage:	497
Total train miles:	194,824—Sept. 29, 1939 to Oct. 24, 1940

The Crackers

(2 trains)

Weight of train:	340,485 lb.
Consist:	2 cars—1 power unit-mail-baggage; 1 coach
Placed in service:	October 11, 1939
Operated between:	Atlanta and Brunswick
Daily mileage per train:	550
Total train miles:	208,450

Gulf, Mobile & Ohio

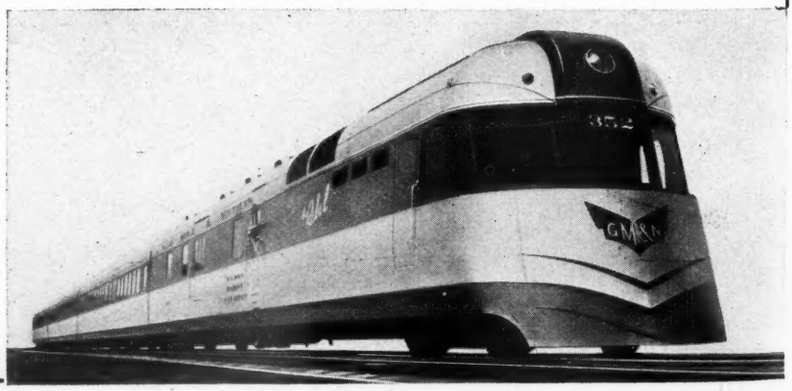
The Rebels

(2 trains)

Weight of train:	480,000 lb. (maximum)
Consist (maximum):	4 cars — 1 power-mail-baggage; 1 buffet-coach; 1 coach; 1 sleeper-observation.
Placed in service:	July 1, 1935
Operated between:	New Orleans and Jackson, Tenn. (One train daily in each direction.)
Daily mileage per train:	497

Remarks: A streamlined Rebel connection is operated in both directions daily between Union, Miss., and Mobile.

the Rebel Route GM&O



Atlantic Coast Line

The Champion

(Penna.—R. F. & P.—A. C. L.—F. E. C.)
(2 trains)

Operated in joint service with the Champion of the F. E. C.
(1 train)

Weight of train:	1,040,245 lb.
Consist:	8 cars—1 power unit; 1 baggage-chair; 4 chair; 1 diner; 1 tavern-lounge-observation. (Consist will be doubled by adding another Diesel power unit and 7 additional cars December 20, 1940).
Placed in service:	December 1, 1939
Operated between:	New York and Miami—via P.R.R., —R. F. & P.—A. C. L., and F. E. C.
Overall scheduled speed:	55.56 m.p.h. — (60.97 m.p.h.—A. C. L.)

Statistics

(December 1, 1939 to September 30, 1940)

Total train miles:	843,292
Total train miles:	414,729 Atlantic Coast Line

Florida East Coast

Henry M. Flagler

Weight of train:	1,082,445 lb.
Consist:	8 cars—1 power unit; 1 baggage-chair; 4 chair; 1 diner; 1 tavern-observation-lounge.
Placed in service:	December 3, 1939
Operated between:	Jacksonville and Miami (1 round trip daily)
Daily mileage:	692
Overall scheduled speed:	58 m.p.h.

Statistics

(First 9 months following December 3, 1939)

Total train miles:	188,916
Total passengers:	79,411
Total passenger miles:	20,532,000
Average passengers per train:	145
Revenue per train mile:	$1.81

The Champion

(Penna.— R. F. & P.—A. C. L.—F. E. C.)
(1 train)

Operated in joint service with the Champions of the A. C. L.
(2 trains)

Weight of train:	1,082,445 lb.
Consist:	8 cars—1 power unit; 1 baggage-chair; 4 chair; 1 diner; 1 tavern-observation-lounge. (Consist will be doubled by adding another Diesel power unit and 7 additional cars December 20, 1940.)
Placed in service:	December 1, 1939 (from New York)
Operated between:	New York and Miami via P. R. R., —R. F. & P., A. C. L., and F. E. C.
Overall scheduled speed:	53 m.p.h. (on F. E. C.)

(*Continued on next page*)

Statistics

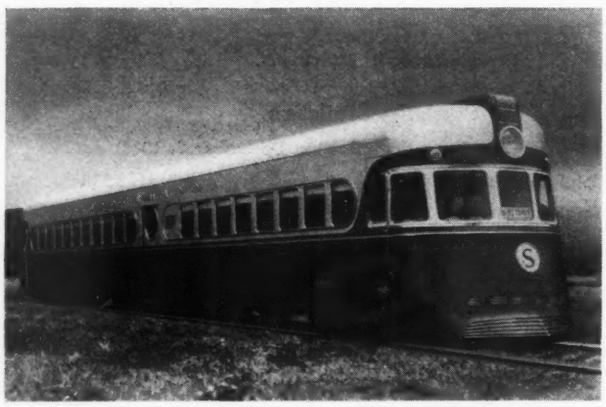
(*Continued from preceding page*)

(First 9 months of operation on F. E. C. only)

Total train miles:	189,262
Total passengers:	102,218
Total passenger miles:	30,351,000
Average passengers per train:	187
Revenue per train mile:	$2.54

Remarks: Used in commuter service these cars have enabled the company to increase passenger service in the suburban zone from 29 to 81 week-day trains and from 7 to 37 Sunday trains. During week days 50 of the runs are made by the new cars and 30 runs are made on Sundays. Service includes 3 round trips between Susquehanna Transfer and Butler, N. J., 4 round trips between the Transfer and North Hawthorne, N. J., and 5 or 6 round trips between the Transfer and Paterson by each car.

New York, Susquehanna & Western



(2 trains)

Weight of train:	76,500 lb.
Consist:	1 car—power unit-coach (Pancake type engine located beneath floor of car)
Placed in service:	July 15, 1940
Operated between:	Susquehanna Transfer N. J., Paterson and Butler
Daily mileage:	Approximately 430, each car

Boston & Maine—Maine Central

Flying Yankee

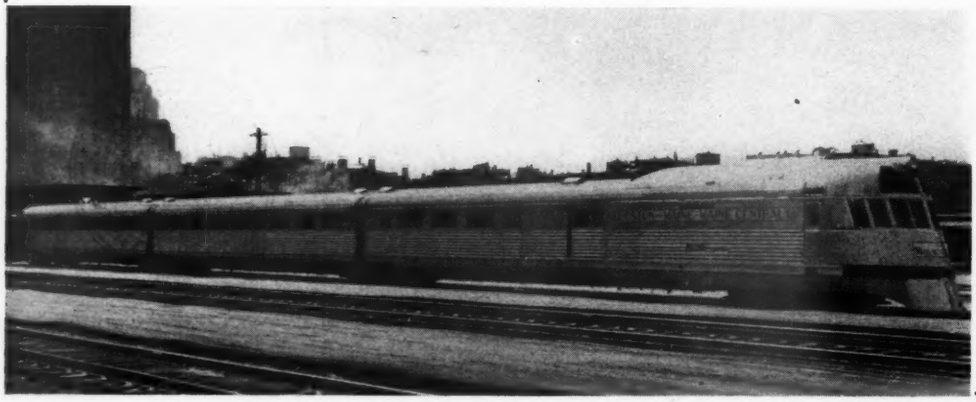
Weight of train:	246,000 lb.
Consist:	3 cars—1 power-baggage-buffet; 1 coach; 1 parlor-observation.
Placed in service:	April 1, 1935
Operated between:	(B. & M.) Portland, Me., and Boston (2 round trips daily except Sunday) (Me. Cent.) Portland, Me., and Bangor. (1 round trip daily except Sunday)
Daily mileage:	734 (6 days a week)
Overall scheduled speed:	51.3 m.p.h. (B. & M.) 46.6 m.p.h. (Me. Cent.)

Statistics

(April 1, 1935 to August 31, 1940)

Total train miles:	1,009,697
Total passengers:	B. & M. 478,406 Me. Cent.: 289,085
Average passengers per train:	B. & M. 717 Me. Cent.: 87
Revenue per train mile:	B. & M.: $1.367 Me. Cent.: $1.265

Remarks: The Flying Yankee is operated regularly as indicated with the exception of the period from June 22 to September 7 when it is operated on a round trip between Boston and Portland, Me., and also as The Mountaineer (one round trip daily except Sunday) between Boston and Littleton, N. H.



BOSTON AND MAINE
MODERN TRANSPORTATION

The New York, New Haven and Hartford Railroad Co.

New York, New Haven & Hartford

Comet

Weight of train:	260,590 lb.
Consist:	3 cars—2 power-coach units; 1 coach. (A power coach unit is located at each end to avoid necessity of turning the train.)
Placed in service:	June 5, 1935
Operated between:	Boston and Providence (5 round trips week days and 4 round trips Sundays.)
Daily mileage:	440—week days 352—Sundays
Overall scheduled speed:	Varies from 48 m.p.h., with 5 intermediate stops to 60 m.p.h. with 2 intermediate stops.

Statistics

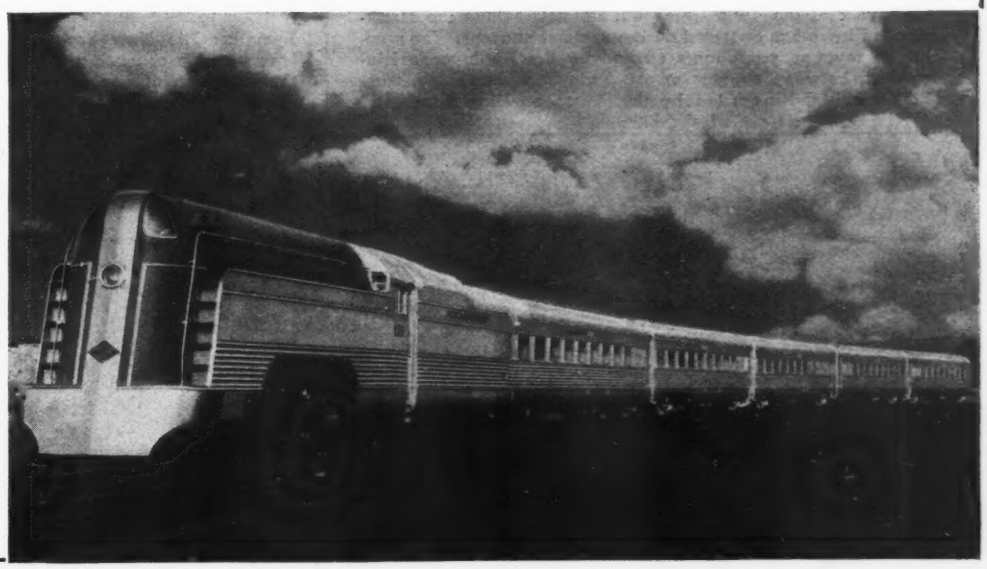
Total train miles:	586,026 (June 5, 1935 to August 31, 1940)
Revenue per train mile:	$1.19 (February 1, 1939 to January 31, 1940)

Reading

Crusader

Weight of train:	994,815 lb. (cars only)
Consist:	5 cars—2 parlor-observation; 2 coaches; 1 tavern-diner.
Placed in service:	December 13, 1937
Operated between:	Philadelphia and Jersey City-New York (2 round trips daily)
Daily mileage:	361
Overall scheduled speed:	56.7 m.p.h.
On time percentage:	95.4 per cent
Total train miles:	301,990 (December 13, 1937—August 31, 1940)

Reading lines



Chicago, Milwaukee, St. Paul & Pacific

Morning Hiawathas
Afternoon Hiawathas

(4 trains)

Average weight of trains:	1,587,200 lb. (cars only)
Normal consist:	9 cars and locomotive—1 railway post office; 1 baggage-mail; 1 express-taproom-buffet; 3 coaches; 1 diner; 1 drawing room-parlor; 1 observation-lounge-parlor. Note: 2 additional express cars are assigned to westbound schedule regularly; also extra passenger cars, to a maximum of 15, are frequently added.
Placed in service:	May 29, 1935 (Afternoon Hiawathas) January 21, 1939 (Morning Hiawathas)
Operated between:	Chicago-Milwaukee and St. Paul-Minneapolis (1 train in each direction daily on each schedule)
Daily mileage per train:	421
Overall scheduled speed:	65.6 m.p.h.
On time percentage:	93 per cent

Statistics (Morning Hiawathas)

(January 21, 1939 to September 30, 1940)

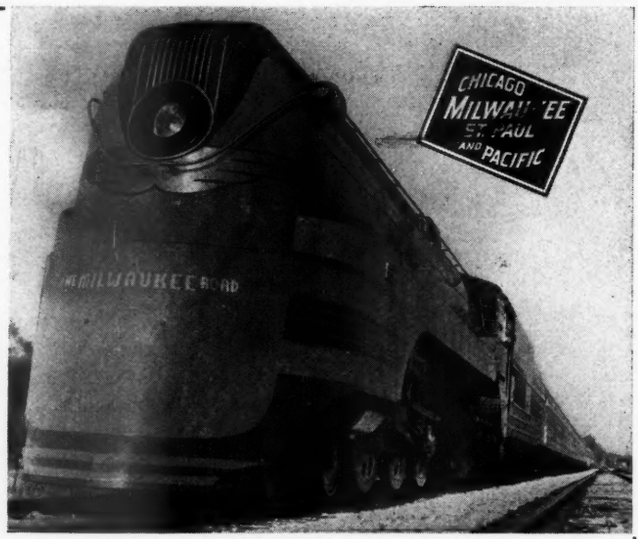
Total train miles:	533,891
Total passengers:	277,533
Total passenger miles:	55,322,756
Average passengers per train:	104
Revenue per train mile:	$3.20

Statistics (Afternoon Hiawathas)*

(May 29, 1935 to September 30, 1940)

Total train miles:	1,848,045
Total passengers:	1,425,831
Total passenger miles:	344,974,759
Average passengers per train:	187
Revenue per train mile:	$3.79

*Remarks: Statistics include extra sections operated between Chicago and the Twin Cities but do not include the Northwoods Hiawathas operated during summer seasons. The number of revenue passengers carried by the Northwoods Hiawathas, between stations on the Twin City route only, combined with those carried by the Afternoon Hiawathas total 1,591,533 for the period shown.



New York Central

Twentieth Century Limited

(4 trains)

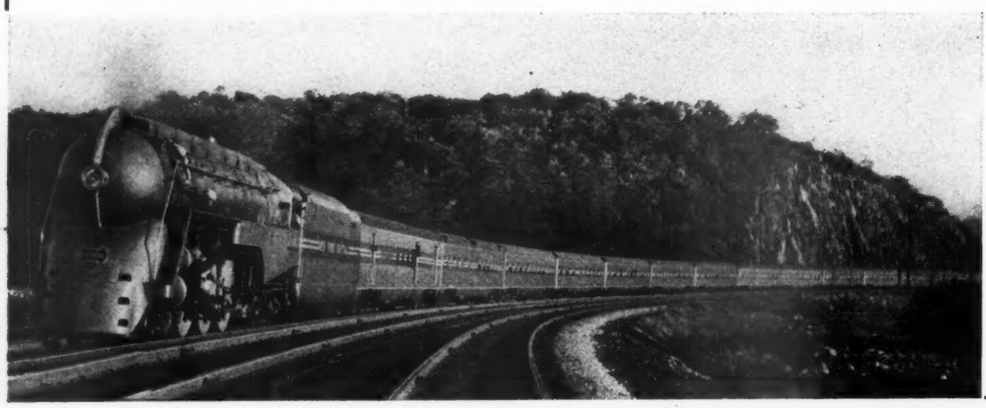
Weight of train:	1,601,400 lb. (cars only)
Consist:	13 cars—1 mail-baggage; 1 club lounge; 1 roomette; 2 roomette-bedroom; 3 compartment-bedroom-drawing room; 2 double bedroom; 2 diners; 1 observation.
New trains placed in service:	June 15, 1938
Operated between:	New York and Chicago
Daily mileage per train:	961
Overall scheduled speed:	59.89 m.p.h.

Statistics

(July 1, 1939 to June 30, 1940)

Total train miles:	703,466
Total passengers handled:	49,216
Average passengers per train:	67.2
Revenue per train mile:	$2.61

Remarks: The New York Central also operates a fleet of luxury trains consisting of new streamlined equipment, with the exception of one or two cars. Such trains have shown consistent increases in patronage since the new equipment was added.



NEW YORK CENTRAL SYSTEM

Modernized Trains Ring the Bell

The Comforts and Conveniences of the Modernized Trains Are Outstanding

THE modernized trains, really an outgrowth of the new streamliners, vary widely in costs and in the extent to which the equipment has been rebuilt or new cars used in the trains. However, from the standpoint of the investment in car construction and interior furnishings, fittings and decorations, most of these modernized trains deserve a ranking with the new streamliners. For example, only a few years ago, the Union Pacific, the Chicago & North Western and the Southern Pacific, spent nearly half a million dollars in modernizing the Challengers and in the purchase of new cars for these trains.

While a few trains, such as the old Southern Pacific Daylights of seven or eight years ago, might possibly have been classed as modernized trains in their day, it was not until the advent of such trains as the Mercury of the New York Central and the Royal Blue of the Baltimore & Ohio, that the modernized train as we know it today came into being. The traffic statistics of such trains show that they have a definite place in the railway picture. They are pleasing in appearance and the striking color schemes of many of them attract widespread attention and promote public interest in train travel.

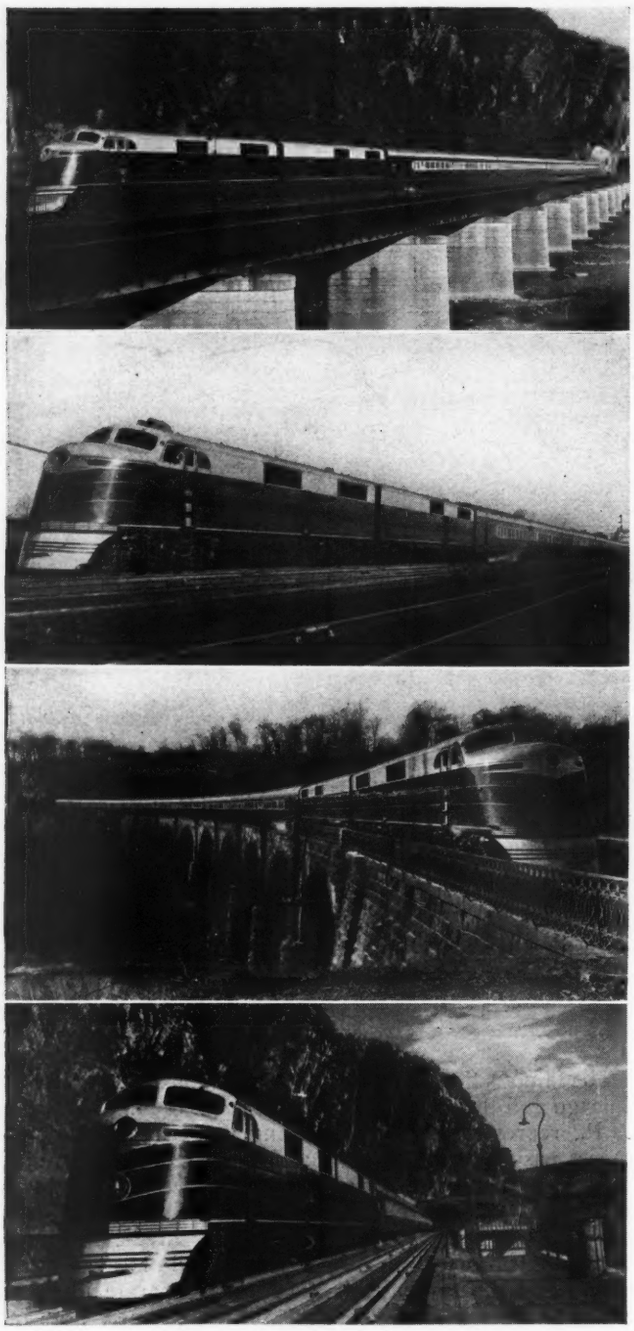
Their schedules are extremely fast in many instances, the interior furnishings are well-designed for beauty, comfort and convenience, and successful operations have been carried out in day runs, in overnight coach runs, and in overnight runs with tourist and standard sleeping car accommodations. In other words, the rebuilt, modernized train has shown its adaptability in all classes of service.

The famous fleet of Challenger trains, operated between Chicago and the Pacific Coast, via the C. & N. W.-U. P.-S. P., represents much pioneering in giving coach and tourist passengers a high value for the money expended for tickets. Started originally as a second all-coach section of the Los Angeles Limited, new equipment and many refinements, including the first three-car diner-kitchen-dormitory units and low-priced meals, were added, and the trains soon assumed a separate identity as the Los Angeles Challenger. Striking a new note in economy travel, the trains have been highly popular from the first.

On September 15, 1937, a San Francisco Challenger was established as a separate train. The Portland Challenger followed and a connection was established between Minneapolis-St. Paul and Omaha, via the C. St. P. M. & O., giving Challenger connections and service from the Twin Cities. The Challengers, as previously described in the *Railway Age,* feature special cars for women traveling alone, stewardess-nurse service, spacious wash rooms and attractive interior decorations.

S. P. Trains

The Southern Pacific participates in the San Francisco Challenger service and operates a similar transcontinental train, the Californian, in connection with the C. R. I. & P. between Chicago and Los Angeles. The Coaster, operated between San Francisco and Los Angeles, is another modernized economy-type coach train. The Beaver, newest of the economy train fleet, was inaugurated be-



The B. & O. Fleet Comprises the Capitol Limited, the National Limited, the Royal Blue and the Columbian

tween San Francisco and Portland on June 8, 1940. It was originally intended as a summer season train only, but its popularity has been such as to permit its operation in year-round service. The recent order of the S. P. for more than 50 new light-weight cars includes equipment to be installed in all of these trains.

Eastern Trains

One of the first of the all-coach trains operated in the East, the Blue Comet of the Central of New Jersey, has been operating between New York and Atlantic City for more than a decade and it was the forerunner of the modernized coach trains of today.

The New York-Chicago and Washington-Chicago service with modernized trains is a development of the last 18 months, but such trains have already proved their worth both in all-coach and in mixed coach and sleeping-car service. In a relatively few months, they have become an integral part of the passenger service in the territory served. The World's Fair in New York undoubtedly helped swell the passenger revenues of some of the trains to a certain extent, but their operation during the winter season when the fair was closed was also eminently satisfactory and the Chicago-Washington runs, which were almost entirely unaffected by the fair have also proved the idea intrinsically sound.

The B. & O. Fleet

The B. & O. operates a fleet of six modernized, streamlined, Diesel-electric-powered trains on four runs, the Royal Blue, the Columbian, the Capitol Limited and the National Limited. The present Royal Blue, rebuilt in the railway's Mt. Clare shops, replaced the new streamlined train of the same name that was found too small for the Jersey City-Washington run and which is now the Abraham Lincoln of the Alton. Operated with standard equipment, the Columbian was the first completely air-conditioned train, effective May 24, 1931. The Capitol Limited has long been an outstanding all-Pullman train. However, after de luxe coaches and a buffet-lounge for coach passengers had been installed on the National Limited in June of this year and proved successful, the Capitol Limited was similarly equipped on August 4, 1940, with immediate results in increased passenger revenues. In fact, it has frequently been necessary since to run a special coach section of the Capitol to take care of the business. This service has been particularly popular with Government employees going to and from Washington on pleasure travel or visits home. The descriptions of these trains follow:

Capitol Limited

(2 trains)

Weight of train:	**2,900,820 lb.**
Consist:	**13 cars and twin power unit; 1 postal, 1 buffet-coach-lounge; 2 coaches; 3 bedroom-section cars; 2 drawing room cars; 2 section sleepers; 1 diner; 1 observation.**
Placed in service:	**May 13, 1923 (Standard) November 23, 1939 (Streamlined)**
Operated between:	**New York-Chicago**
Daily mileage per train:	**996.2**
Overall scheduled speed:	**48.6 m.p.h.**

National Limited

(2 trains)

Weight of train:	**2,491,000 lb.**
Consist:	**11 cars and twin power unit; 1 postal; 1 buffet-coach-lounge; 2 coaches; 2 drawing-room sleepers; 1 bedroom-section sleeper; 1 diner; 1 observation-lounge.**
Placed in service:	**April 26, 1925 (Standard) June 28, 1940 (Streamlined)**
Operated between:	**New York-St. Louis**
Daily mileage per train:	**1,110**
Overall scheduled speed:	**44.1 m.p.h.**

Like the Royal Blue, the Columbian makes a round trip daily on alternate Washington-New York runs and has the same consist, although the Royal Blue is slightly heavier.

Royal Blue
Columbian

Weight of train:	**Royal Blue—1,937,600 lb. Columbian—1,908,260 lb.**
Consist:	**8 cars and twin power unit; 1 baggage-coach; 3 reclining chair coaches; 1 diner; 1 coach-tavern; 1 drawing-room parlor; 1 cafe-lounge-observation.**
Placed in service:	**Royal Blue—June 24, 1935 Columbian—June 16, 1929 (Standard) Sept. 26, 1937 (Streamlined)**
Operated between:	**New York-Washington**
Daily mileage per train:	**447**
Overall scheduled speed:	**55.9 m.p.h.**

The N. Y. C. Fleet

The New York Central has been outstandingly successful with its rebuilt, modernized trains. The first Mercury began service between Cleveland and Detroit (N. Y. C.-M. C.) on July 15, 1936. Based on its success, a second Mercury was built in the N. Y. C. shops at Indianapolis and the service was expanded effective November 12, 1939. Under the new arrangement, one train leaves Cleveland in the morning, lays over in Detroit for a few hours and then proceeds to Chicago. Meanwhile, the companion train is making the same two runs in the reverse direction. The statistics which follow cover the year ending June 30, 1940, for the Cleveland-Detroit service and the period from November 12 to June 30 for the combined Cleveland-Detroit-Chicago service.

The Mercury

(2 trains)

Weight of train:	**1,172,800 lb. (excluding locomotive)**
Consist:	**9 cars—1 baggage-coach; 3 coaches; 1 coach-kitchen; 1 diner; 1 lounge-parlor; 1 parlor; 1 parlor-observation.**
Placed in service:	**1st train: July 15, 1936 2nd train: November 12, 1939**
Operated between:	**Cleveland-Detroit-Chicago**
Daily mileage per train:	**447.7**
Overall scheduled speed:	**Cleveland-Detroit: 57.9 m.p.h. Detroit-Chicago: 59.6 m.p.h.**
Total train miles:	**256,425**
Total passengers handled:	**203,426**
Average passengers per train:	**355**
Revenue per train mile:	**$3.36**

The New York Central also operates a luxury coach train between New York and Chicago to which a new observation car of unusual comfort and convenience has recently been added. The following statistics cover this train's operations from its inception to June 30, 1940:

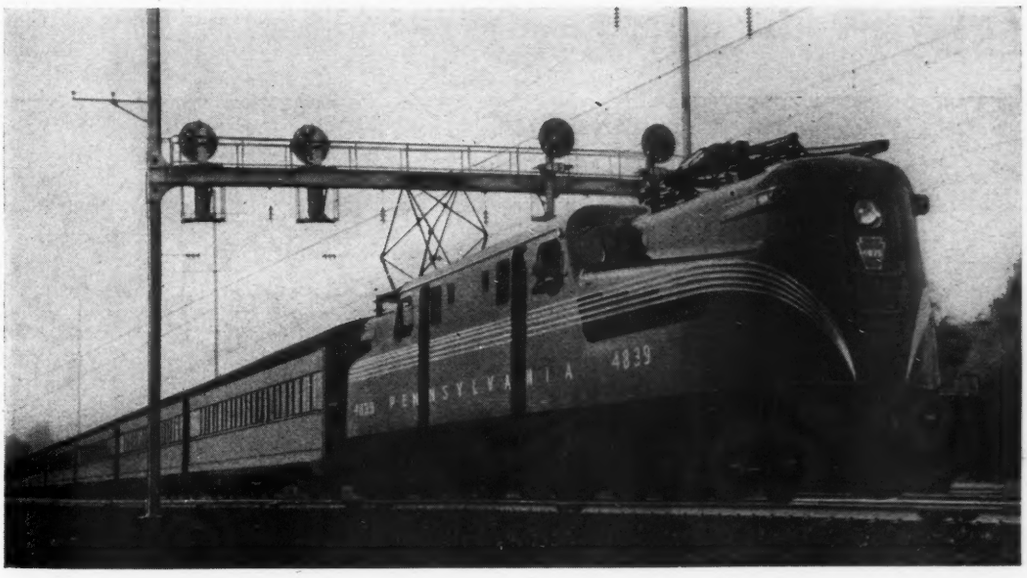
The Pacemaker

(2 trains)

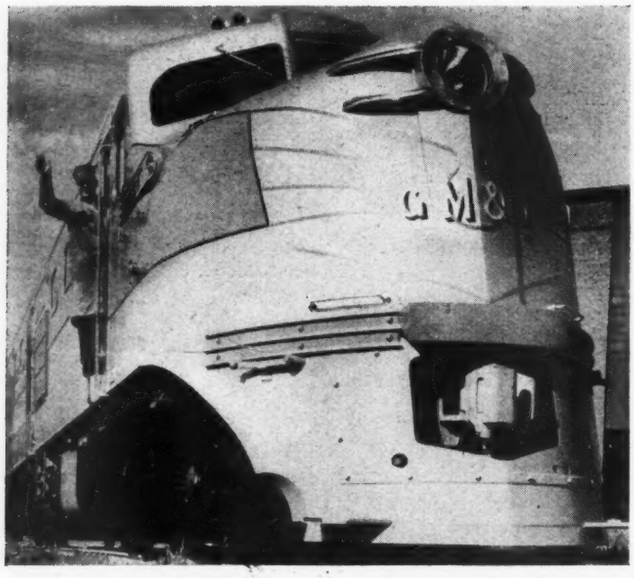
Weight of train:	**1,207,100 lb. (excluding engine)**
Consist:	**8 cars—1 baggage; 4 coaches; 1 club-lounge; 1 observation; 1 diner.**
Placed in service:	**July 28, 1939**
Operated between:	**New York-Chicago**
Daily mileage per train:	**961**
Overall scheduled speed	**56.4 m.p.h.**
Total train miles:	**655,317**
Total passengers handled:	**114,095**
Average passengers per train:	**167.2**
Revenue per train mile:	**$2.18**

Pennsylvania Coach Trains

The Pennsylvania, on July 28, 1939, began the operation of the Trail Blazer, a modernized, streamlined luxury coach train between Chicago and New York, on a



The Pennsylvania's Trail Blazer on the Electrified Section



The Gulf Coast Rebel is One of the Newer Modernized Trains

17-hour schedule, exceeded in speed only by extra-fare trains. These trains accumulated 787,264 train miles up to September 30, 1940, and are featured by club and lounge facilities for coach passengers, low-cost meals, reclining seats, spacious washrooms and other unique coach facilities. Each train makes the run of 908 miles between Chicago and New York daily at an average speed of 53.4 m. p. h. The weight of the train is 1,369,800 lb., and the normal consist is 9 cars—1 baggage-lounge, 5 coaches, 1 dining-room car, 1 kitchen-dormitory car and 1 buffet-lounge observation. Newly modernized equipment was placed in these trains last spring to accommodate the increasing traffic, and a Washington connection was established last summer, consisting of through Washington-Chicago coaches, handled on a regular train between Harrisburg and Washington, with lounge and low-cost meals available.

L. V. Fleet

The Lehigh Valley has modernized four of its principal trains on three runs, the Black Diamond, the Asa Parker, and the John Wilkes, and has shortened the schedule time of several of its trains. Statistics on the modernized trains follow:

Black Diamond

(2 trains)

Weight of train:	1,668,000 lb. (including locomotive)
Consist:	8 cars—1 express-baggage; 1 baggage-mail; 3 coaches; 1 diner-club; 2 parlor.
Placed in service:	May, 1896 (Standard) April, 1940 (Streamlined)
Operated between:	New York-Buffalo
Daily mileage per train:	447.6

John Wilkes

(1 train)

Weight of train:	1,336,000 lb. (including locomotive)
Consist:	6 cars eastbound 8 cars westbound
Placed in service:	June 4, 1939
Operated between:	New York-Wilkes Barre-Coxton, Pa.
Daily mileage:	372.8 (one round trip)

Asa Packer

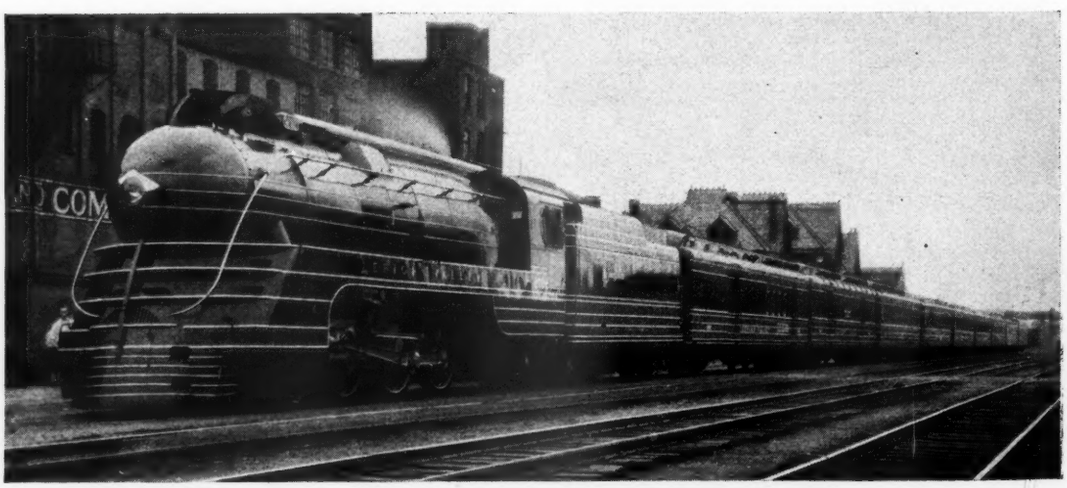
(1 train)

Weight of train:	1,495,000 lb. (including locomotive)
Consist:	8 cars—1 express-baggage; 1 baggage-mail; 4 coaches; 1 diner-club, 1 parlor.
Placed in service:	February 1, 1939.
Operated between:	New York-Wilkes Barre-Coxton, Pa.
Daily mileage:	372.8 (one round trip)

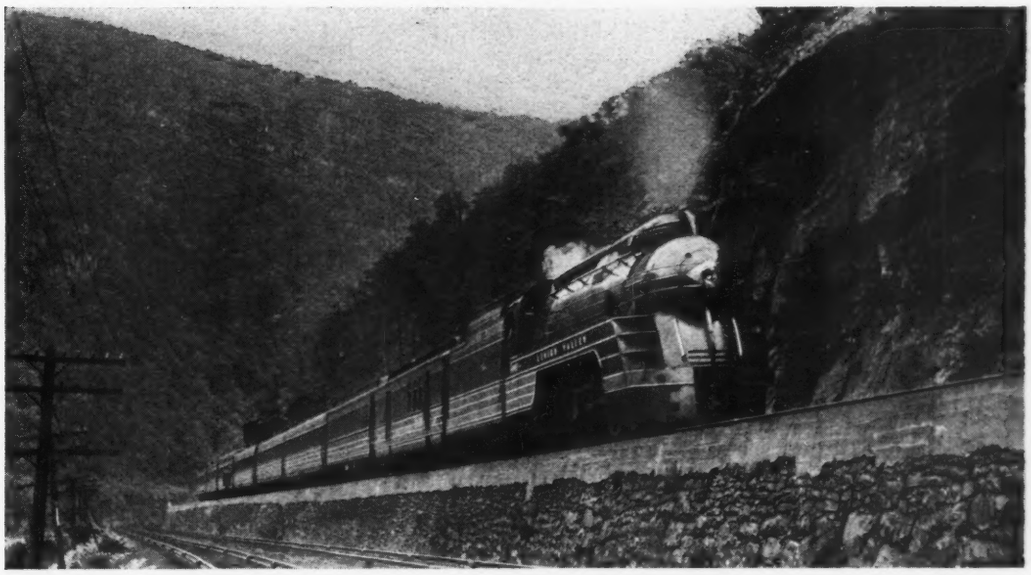
The Asa Packer and the John Wilkes are operated in joint service, the former leaving New York in the morning and returning in the evening, while the latter leaves Coxton in the morning and returns in the evening.

New England Trains

The Ambassador, a coach train with a lounge car for coach passengers, has been operated by the Canadian National, the Central Vermont and the Boston & Maine, between Boston and Montreal for some years. Recently,



The John Wilkes of the Lehigh Valley Serves the Anthracite Territory



The Black Diamond Leads the Lehigh Valley Fleet

this equipment has been so improved as to bring this train within the classification of a modernized coach train.

On June 23, 1940, the New England resorts received their first de luxe coach train service from Washington and New York when the East Wind was inaugurated. This train was operated successfully throughout the summer season by the Pennsylvania, New Haven, Boston & Maine and Maine Central. It was distinctively colored in canary and silver and carried air-conditioned coaches with three-way reclining seats, a tavern-lounge car and a grill car, serving low-cost meals, presided over by a hostess. The fast schedule called for a run of 705 miles between Washington and Bangor, Me., in daylight and the train attracted so many passengers that, after the first few trips, additional equipment had to be supplied. Connections were made at junction points with many resort trains, so that a wide area of New England's vacation land was served.

The Bangor & Aroostook also operates a modern coach train, the Aroostook Flyer, equipped with buffet-lounge car, on a fast day run between Bangor, Me., and Van Buren, 235 miles.

Southeastern and Frisco Train

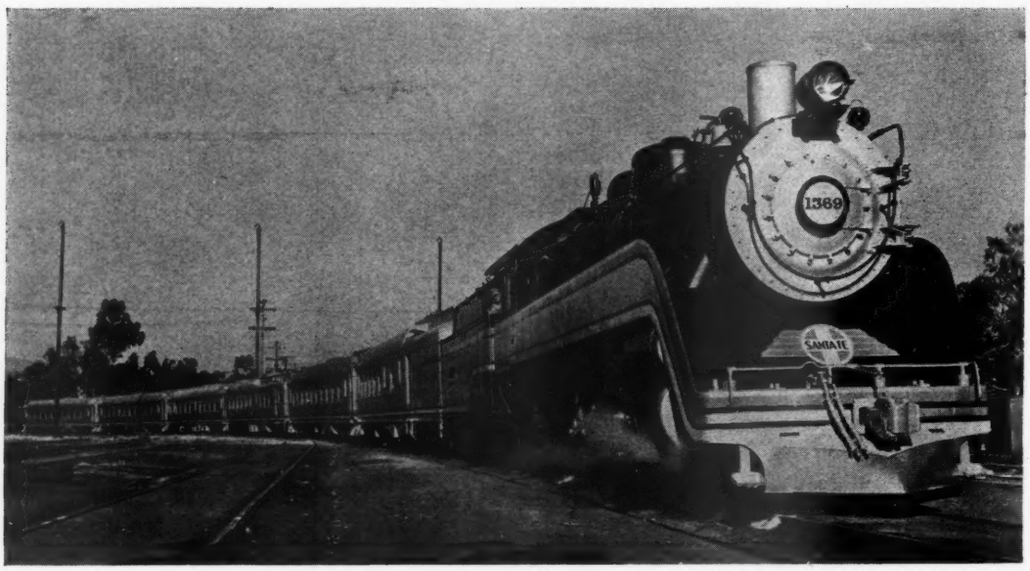
Effective December 1, the Vacationer of the Atlantic Coast Line, which has been in operation for several seasons, will be equipped with "super de luxe" coaches, and powered by twin Diesel-electric units, totaling 4,000 h.p., and will make the run between New York and Miami on a 25-hr. schedule. In addition to luxurious coaches, the train will have two modern diners and a full-length tavern-lounge car. These trains are painted in a distinctive color scheme and are equipped with rubber draft gears and buffers for smooth riding.

The Gulf, Mobile & Ohio has modernized the Gulf Coast Rebel, operated between St. Louis and Mobile, Ala., the cars having undergone heavy structural changes in the car builder's plant and complete refurnishing in the Iselin shops of the railway at Jackson, Tenn. These trains consist of both coach and Pullman equipment, with modern dining and lounge cars having both table and lunch counter service. Two new 2,000 h. p. supercharged Diesel-electric locomotives are now in operation on these trains, and the schedules between the two cities have been cut materially in each direction.

The Nashville, Chattanooga & St. Louis operates two coach trains with lounge car facilities, the Lookout between Nashville and Chattanooga and the Volunteer between Nashville and Memphis, on fast schedules. On June 30, 1940, the schedules of these trains were coordinated to give fast service between Chattanooga and Memphis, with a change at Nashville.

Included in the Frisco fleet of fast trains is the mod-

The Mercury of the New York Central Has Been an Outstanding Success



The Valley Flyer of the Santa Fe Serves the San Joaquin Valley in California

ernized Firefly, a high-speed train operating between Kansas City and Oklahoma City via Tulsa. This recent addition to Frisco passenger service is run on a fast daylight schedule, with an excellent on-time record, and has been productive of much new traffic. Its description follows:

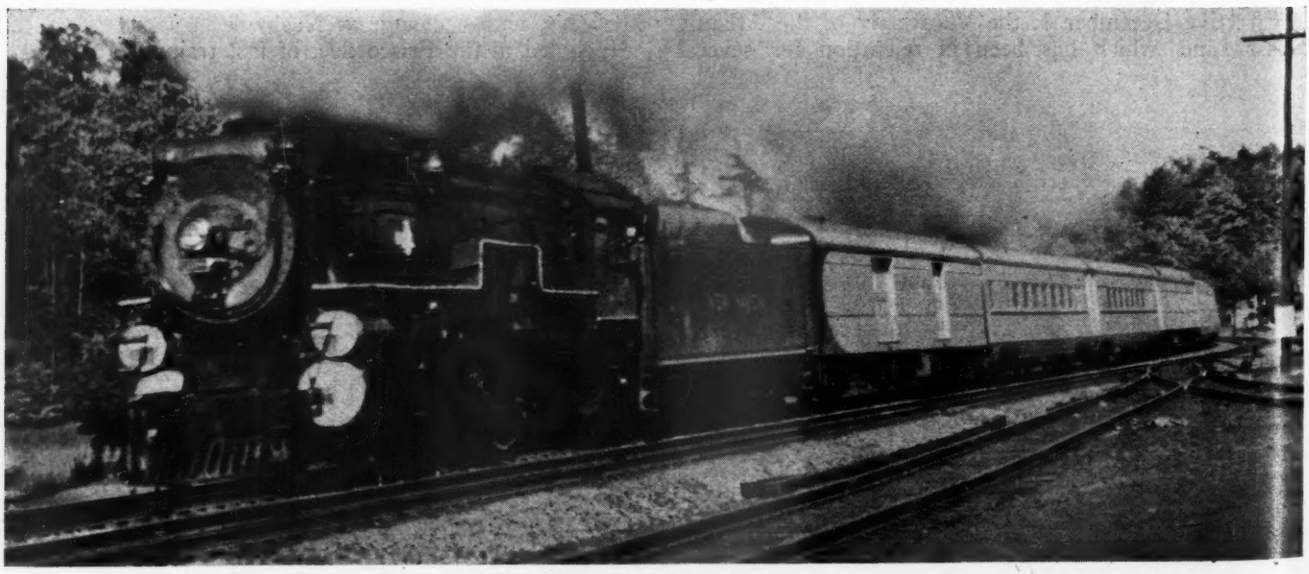
Firefly

(2 trains)

Weight of train:	678,800 (excluding locomotive)
Consist:	4 cars—1 mail-baggage; 1 mail-baggage-chair; 1 de luxe chair; 1 diner-lounge.
Placed in service:	December 10, 1939.
Operated between:	Kansas City-Tulsa-Oklahoma City
Daily mileage per train:	379
Overall scheduled speed:	52.3 m.p.h.
Total train miles:	207,637 (9 months 1940)
Total passengers handled:	35,380 (9 months 1940)
Average passengers per train:	64.6

Two other modernized trains that are operated in the summer season only are the Valley Flyer of the Santa Fe, which supplements the streamlined Golden Gate service between Oakland, Calif., and Bakersfield, and, on the other side of the continent, the Mountaineer of the N. Y. O. & W., serving the Catskill mountain resorts out of New York.

The modernized trains have assumed a definite place in the passenger service of this country. Their distinctive appearance and striking, vivid color schemes attract much attention as they flash across the country. The passenger of today, accustomed to speed, color and streamlining in all forms of transportation is attracted by modern appearance. The patronage of such trains indicates the value of speed, color and comfort in the modern passenger vehicle, whether it be on the rails, the highway or in the air.



The East Wind Runs Over 700 Miles on a Daylight Schedule on the Penna.—N. Y., N. H., & H.—B. & M.—Me. Cent.

Modern Passenger Cars Built Around the Passenger

Factors affecting his environment as seriously considered as those affecting safety

ENGINEERING developments seldom proceed at a steady pace. Steel started a revolutionary change in car construction about 40 years ago. Following the introduction of this material progress in the art was first rapid and then gradually slowed down as types of construction became standardized and refinements a matter of detail.

A year ago, in the Passenger Progress Number of 1939, what had happened in the new era of car construction introduced by high-tensile and lightweight structural materials was reviewed. It was seen how the possibilities which light weight opened for increasing passenger-train speeds were quickly realized and the present trend toward faster schedules established.

Riding Smoother

The new direction of engineering development in passenger-car design and in passenger-train speeds has been accompanied by an equally big change in the attitude of the railroads toward the taste of the passenger and his comfort, particularly the coach passenger. Attention to improvement in the riding qualities of passenger cars began in 1931 with the employment of rubber inserts at various points in the passenger-car trucks to absorb high-frequency vibrations and reduce noise in the cars. The later types of draft gears and diaphragms have been aimed at bettering the smoothness of starting and stopping and reducing noise originating between the cars. Tight-lock couplers, by reducing slack, have contributed materially to the former.

The suspension of car bodies on trucks to bring about more effective cushioning of vertical and lateral car-body oscillations and roll has been the subject of intensive study, and a general understanding of the fundamentals of this problem has been acquired. It has been found that the rate of acceleration of these movements is not alone the determining factor in passenger comfort, but that the rate of change of the rate of acceleration is of greater importance. Increased amplitude of spring deflection has contributed to the better riding of lightweight cars by reducing the rate of change of the rate of acceleration as well as the maximum rate of acceleration itself. The so-called pendulum principle of suspension, first demonstrated in 1938, is an attempt at an improvement of all these movements. It will soon be under further trial on three western railroads.

The Coach Seat Becomes Comfortable

Equally as important as these factors in improved passenger service is the complete change in attitude toward the environment offered the passenger within the car. The first change of this kind began about 14 years ago with the introduction of individual seats patterned after those then in use on de luxe buses. This departure from the venerable walkover type of coach seat in which passenger comfort had to be compromised in the interests of reversibility introduced a period of development of seats of the rotating, reclining type, to the comfort and durability of which foam-rubber cushions have made an important contribution.

Evolution in the Use of Color

The profuse use of color in car interiors began with the advent of the early high-speed trains. A variety of effects has been achieved with wall coverings of a number of other materials, and the tendency now seems to be toward the use of neutral wall colors or materials in which texture is the center of interest. These interiors are made distinctive by the skillful use of color in the upholstery and sometimes as trim on the walls.

Since the Challenger service on the Union Pacific demonstrated that coach travel can be made attractive for overnight and longer runs to a profitably large number of patrons, de luxe coach trains have been installed on numerous other roads. Overnight coach trains between New York and Florida and between New York and Chicago have been notably successful, and this winter will see similar trains running between Chicago and Florida.

These services, where the comfort of the passenger in overnight coach travel has been made a matter of serious concern, have caused especial attention to be directed to toilet and dressing-room facilities. Most of the cars intended specifically for use on such runs include roomy lounges and toilet facilities of the best quality. Some of the coaches soon to go into these services will have double the usual number of toilets. Since these overnight de luxe coach trains include lounge cars, the emphasis on the men's and women's rooms in the coaches is changing from lounging to dressing, particularly in the women's rooms, so that fewer delays will be experienced in waiting for places at dressing tables, mirrors and lavatories.

Window Problems

The advent of air conditioning has eliminated the need for windows which can be opened for summer ventilation. Several types of fixed sash are replacing the old removable type and the more general use of plate glass has greatly improved the quality of the vision.

The comfort of the passengers, particularly in the winter, and the minimizing of losses through heat transfer both in summer and in winter, require the use either of double sash or double-glazed single sash. A problem introduced with the double-glazed windows is steaming and frosting of the inner surfaces of the outer window. Dehydrating materials, in small tubes inserted in the sealed space between the panes, have solved this problem, thus making practicable the single sash, double glazed.

Another problem arising from the use of the fixed sash is relieving the sash and glass from the shearing

effect of distortions in the car body while maintaining a tight dust seal between the sides of the car and the outside of the sash. Various methods have been employed. The more recent developments make use of rubber as the sealing medium and either depend upon the movement within the seal for the adjustment of the sash to the car body, or on a window frame sufficiently rigid within itself to protect the sash.

Fixed sash have now been developed which can be completely removed as a unit from the inside of the car by the removal of three or four screws.

Since the advent of air-conditioning, the greatest improvements have been in the methods of distributing the air entering the car body and in temperature control. Cold air can now be so diffused as it enters the car that

(*Continued on page 762*)

Passenger Coaches and Body Units of Articulated Trains in Which the New Structural Materials and New Methods of Fabrication Have Been Used to Reduce Weight

Road	No. cars	Class	Length, ft.-in.	Weight, lb.	Structural material	Year built	Builder
Alabama Great Southern	2	Coach	72–9	114,700	H. T. steel	1939	St. Louis Car Co.
	2	Motor-bagg.	80– 0	228,200	H. T. steel	1939	St. Louis Car Co.
Atchison, Topeka & Santa Fe	1	Coach	79– 8	83,530	Stain. steel	1936	Edw. G. Budd
	1	Coach	79– 2	98,000	H. T. steel	1936	St. Louis Car Co.
	1	Bagg.-mail	73–10				
	1	Bagg.	79–10				
	1	Diner	83– 2	851,000	Stain. steel	1937	Edw. G. Budd
	1	Club	79–10				
	4	Sleeper	79–10				
	1	Sleep.-obs.	79–11				
	47	Coaches	79–10	104,000	Stain. steel	1937–38	Edw. G. Budd
	18	Diners	83– 2	115,500	Stain. steel	1937–38	Edw. G. Budd
	6	Club-bagg.	79–10	104,000	Stain. steel	1937	Edw. G. Budd
	6	Lounge	....	.....	Stain. steel	1937	Edw. G. Budd
	2	Obs.-chair	80– 0	101,300	Stain. steel	1938	Edw. G. Budd
	2	Chair-club	....	.....	Stain. steel	1938	Edw. G. Budd
	2	Bagg.-lounge	....	.....	Stain. steel	1938	Edw. G. Budd
	1	Club-lounge	....	.....	Stain. steel	1938	Edw. G. Budd
	2	Bagg.-mail	....	.....	Stain. steel	1938	Edw. G. Budd
	2	Pass.-bagg.-dorm.	79–10	104,900	Stain. steel	1938	Edw. G. Budd
	2	Pass.-bagg.	....	.....	Stain. steel	1938	Edw. G. Budd
	5	Parlor-obs.	..	.....	Stain. steel	1938	Edw. G. Budd
	2	Mail	63– 1¾	85,015	Stain. steel	1940	Edw. G. Budd
	1	Chair	79– 8	106,020	Stain. steel	1940	Edw. G. Budd
	2	Club-chair	79– 8	100,915	Stain. steel	1940	Edw. G. Budd
	1	Diner	80– 4	117,150	H. T. steel	1940	Pull.-Std.
	1	Diner-lunch-lounge	80– 4	116,600	H. T. steel	1940	Pull.-Std.
	2	Pass.-bagg.	73– 6	101,750	H. T. steel	1940	Pull.-Std.
	1	Pass.-bagg.-bunk	73– 6	104,400	H. T. steel	1940	Pull.-Std.
	1	Chair-obs.	73–11	102,800	H. T. steel	1940	Pull.-Std.
	1	Club	73– 6	105,390	H. T. steel	1940	Pull.-Std
	1	Coach	85– 0	.....	H. T. and stain. steel	1	Pacific Ry. Equip.
Atlantic Coast Line	2	Pass.-bagg.-dorm.	85– 0	107,500	Stain. steel	1939	Edw. G. Budd
	6	Coaches	85– 0	105,750	Stain. steel	1939	Edw. G. Budd
	2	Coaches	85– 0	106,810	Stain. steel	1939	Edw. G. Budd
	2	Diner	85– 0	113,800	Stain. steel	1939	Edw. G. Budd
	2	Obs.-tavern	85– 0	105,895	Stain. steel	1939	Edw. G. Budd
	3	Pass.-bagg.	85– 0	.....	Stain. steel	1	Edw. G. Budd
	8	Coaches	85– 0	.....	Stain. steel	1	Edw. G. Budd
	3	Diners	85– 0	.....	Stain. steel	1	Edw. G. Budd
	3	Tavern-obs.	85– 0	.....	Stain. steel	1	Edw. G. Budd
Baltimore & Ohio	1	Diner-l. c.	70– 0	97,300	Alum. alloy	1935	American Car & Fdry.
	1	Mail-bagg.	67–10	76,900	Alum. alloy	1935	American Car & Fdry.
	3	Coach	70– 0	88,600	Alum. alloy	1935	American Car & Fdry.
	2	Chair	70– 0	88,200	Alum. alloy	1935	American Car & Fdry.
	1	Obs.-chair	70– 0	83,250	Alum. alloy	1935	American Car & Fdry.
	1	Diner-l. c.	70– 0	107,500	H. T. steel	1935	American Car & Fdry.
	1	Mail-bagg.	67–10	87,500	H. T. steel	1935	American Car & Fdry.
	3	Coach	70–10	98,800	H. T. steel	1935	American Car & Fdry.
	2	Chair	70–10	98,400	H. T. steel	1935	American Car & Fdry.
	1	Obs.	70–10	92,700	H. T. steel	1935	American Car & Fdry.
Bangor & Aroostook	3	Buffet-coach	84– 8¾	117,600	H. T. steel	1937	Pull.-Std.
	2	Coaches	84– 8¾	111,300	H. T. steel	1937	Pull.-Std.
	4	Bagg.-mail	74– 5⅛	96,500	H. T. steel	1937–39	Pull.-Std.
Boston & Maine	33	.....	199– 2¾[4]	213,600[4]	Stain. steel	1935	Edw. G. Budd
	10	Coaches	84–¼	108,700	H. T. steel	1935	Pull.-Bradley
	21	Coaches	80– 1½	89,800	H. T. steel	1935	Pull.-Bradley
	20	Coaches	84–¼	108,700	H. T. steel	1937	Pull.-Std.
Burlington-Rock Island	15	Coach	64– 0	55,335	Stain. steel	1939	Budd
Canadian Pacific	4	Mail-exp.	73–10½	107,700	Carbon steel	1936	National Steel
	8	Coach	73–10½	110,000	Carbon steel	1936	National Steel[2]
	4	Bagg.-buffet-coach	73–10½	114,000	Carbon steel	1936	National Steel[2]
	1	Coach and smoker	73–10½	118,000	Carbon steel	1938	National Steel[2]
	21	Coach	77– 9½	118,000	Carbon steel	1938	National Steel[2]
	1	Buffet-parlor	78– 3½	120,000	Carbon steel	1938	National Steel[2]
	5	Mail-exp.	73–10½	108,000	Carbon steel	1938	National Steel
	2	Bagg.-exp.	73–10½	107,000	Carbon steel	1938	National Steel
	10	Mail-exp.	73–10½	105,500	Carbon steel	1940	National Steel
	10	Bagg.-exp.	83–10½	....	Carbon steel	1	Canadian Car & Fdry.
	25	Coach	83–10½	....	Carbon steel	1	Canadian Car & Fdry.[2]
Central of Georgia	3	Exp.	74– 3⅜	100,400	H. T. steel	1937	Bethlehem
	5	Coach	84– 2¾	120,000	H. T. steel	1937	Bethlehem
Chesapeake & Ohio	3	Pass.-bagg.	67– 8	....	Alloy steel	1937	Bethlehem
Chicago & North Western	16	Chair	81– 0	113,900	H. T. steel	1937	Pull.-Std.
	7	Chair	81– 0	115,300	H. T. steel	1937	Pull.-Std.
	2	Bagg.-tap-room-coffee shop-lounge	82– 0	121,483	H. T. steel	1939	Pull.-Std.
	8	Coach	82– 0	114,445	H. T. steel	1939	Pull.-Std.
	2	Diner	82– 8	125,733	H. T. steel	1939	Pull.-Std.
	6	Parlor	82– 0	113,766	H. T. steel	1939	Pull.-Std.
	2	Parlor-obs.	82– 0	115,333	H. T. steel	1939	Pull.-Std.
Chicago, Burlington & Quincy	38	.....	197– 1¾[4]	218,800[4]	Stain. steel	1934	Edw. G. Budd
	68	.....	196– 9 7/16[4]	225,000[4]	Stain. steel	1935	Edw. G. Budd
	15	Coach	....	44,000	Stain. steel	1935	Edw. G. Budd
	48	.....	280– 0[4]	287,000[4]	Stain. steel	1935	Edw. G. Budd
	25	Mail-bagg.	76– 3	108,300	Stain. steel	1936	Edw. G. Budd
	45	Coach	64– 0	58,700	Stain. steel	1936	Edw. G. Budd
	25	Parlor	64– 0	57,100	Stain. steel	1936	Edw. G. Budd
	25	Parlor-lounge	78– 8	60,900	Stain. steel	1936	Edw. G. Budd
	25	Diners	64– 0	65,700	Stain. steel	1936	Edw. G. Budd
	45	Bagg.-lounge	84– 6	95,600	Stain. steel	1936	Edw. G. Budd
	28	Coach	64– 0	64,000	Stain. steel	1936	Edw. G. Budd
	25	Coach	76– 3	76,500	Stain. steel	1936	Edw. G. Budd
	25	Diners	73– 6	91,100	Stain. steel	1936	Edw. G. Budd

Passenger Coaches and Body Units of Articulated Trains in Which the New Structural Materials and New Methods of Fabrication Have Been Used to Reduce Weight—Continued

Road	No. cars	Class	Length, ft.-in.	Weight, lb.	Structural material	Year built	Builder
Chicago, Burlington & Quincy (Continued)	6[5]	Sleepers	76– 3	81,600	Stain. steel	1936	Edw. G. Budd
	2[5]	Sleepers	76– 3	87,100	Stain. steel	1936	Edw. G. Budd
	2[5]	Lounge-buffet	78– 8	84,300	Stain. steel	1936	Edw. G. Budd
	2	Coach-diner	64– 0	50,700	Stain. steel	1937	Edw. G. Budd
	3	Diners	83– 2	115,000	Stain. steel	1938	Edw. G. Budd
	3	Chair	79–10	90,000	Stain. steel	1938	Edw. G. Budd
	2[5]	Dinette-chair	....	65,000	Stain. steel	1938	Edw. G. Budd
	1[5]	Coach-dinnette	....	60,000	Stain. steel	1938	Edw. G. Budd
	1	Motor-bagg.	....	201,800	Stain. steel	1939	Edw. G. Budd
	2	Sleepers	87– 6	110,027	Stain. steel	1939	Edw. G. Budd
	1	Chair	88– 8	103,979	Stain. steel	1939	Edw. G. Budd
	1	Chair	79– 8	97,499	Stain. steel	1939	Edw. G. Budd
	1	Diner-obs.	88– 7	109,117	Stain. steel	1939	Edw. G. Budd
	1[5]	Chair	64– 0	63,230	Stain. steel	1939	Edw. G. Budd
	1	Diner-obs.	88– 7	118,205	Stain. steel	1939	Edw. G. Budd
	1	Bagg.	72– 8	83,620	Stain. steel	1940	Edw. G. Budd
	1	Bagg.-mail	72– 8	89,670	Stain. steel	1940	Edw. G. Budd
	2	Chair	79– 8	103,480	Stain. steel	1940	Edw. G. Budd
	9	Chair	79– 8	103,585	Stain. steel	1940	Edw. G. Budd
	2	Bagg.	88– 8	92,805	Stain. steel	1940	Edw. G. Budd
	1	Bagg.-mail	72– 8	90,620	Stain. steel	1940	Edw. G. Budd
	2	Diner-obs.	88– 7	116,730	Stain. steel	1939	Edw. G. Budd
	1	Coach	85– 0	.....	H. T. and stain. steel	[1]	Pacific Ry. Equip. Co.
Chicago, Milwaukee, St. Paul & Pacific.....	1	Coach	80– 8	96,000	Carbon steel	1934	Co. shops
	23	Bagg.	74– 6	103,000	Carbon steel	1934	Co. shops
	2	Cafe-bagg.	74– 6	131,500	Carbon steel	1934	Co. shops
	8	Pass.-bagg.	56– 1	57,000	Carbon steel	1934	Co. shops
		Coach	81– 8	112,200	Carbon steel	1934	Co. shops
		Dining	75– 8	122,500	Carbon steel	1934	Co. shops
	50	Parlor	81– 8	113,700	Carbon steel	1934	Co. shops
		Rear parlor	81– 8	112,900	Carbon steel	1934	Co. shops
	2	Rear parlor	80– 6 1/8	92,000	H. T. steel	1936	Co. shops
	2	Parlor	81– 7 7/8	95,100	H. T. steel	1936	Co. shops
	2	Parlor	81– 8 7/8	95,300	H. T. steel	1936	Co. shops
	2	Diners	81–11 1/2	102,500	H. T. steel	1936	Co. shops
	2	Tap-room-exp.	81–11 1/2	96,200	H. T. steel	1936	Co. shops
	17	Coach	81– 8 7/8	94,900	H. T. steel	1936	Co. shops
	5	Mail-exp.	75– 3 1/2	94,200	H. T. steel	1936	Co. shops
	5	Exp.	75– 3 1/8	88,000	H. T. steel	1936	Co. shops
	19	Coach	80– 8 3/4	100,000	H. T. steel	1937	Co. shops
	1	Coach-bunk	80– 8 3/4	102,100	H. T. steel	1937	Co. shops
	7	Diner	80–11	109,600	H. T. steel	1937	Co. shops
	5	Pass.-bagg.	80– 8 3/4	98,500	H. T. steel	1937	Co. shops
	1	Mail-exp.	72–10	92,600	H. T. steel	1937	Co. shops
	4	Bagg.-tap room	80–11	98,800	H. T. steel	1938	Co. shops
	4	Diner	80–11	105,400	H. T. steel	1938	Co. shops
	6	Dr.r'm-parlor	80– 8 3/8	93,300	H. T. steel	1938	Co. shops
	4	Rear parlor	80– 8 3/8	91,700	H. T. steel	1938	Co. shops
	16	Coach	80– 8 3/8	93,400	H. T. steel	1938	Co. shops
	2	Mail	64– 2	90,100	H. T. steel	1938	Co. shops
	10	Pass.-bagg.-mail	70– 7	71,600	H. T. steel	1938	Co. shops
	10	Pass.-bagg.	57– 2 1/2	56,400	H. T. steel	1938	Co. shops
	1	Coach-bunk	80– 8 3/8	94,000	H. T. steel	1938	Co. shops
	1	Mail-exp.	74– 3	94,000	H. T. steel	1938	Co. shops
	3	Bagg.	74– 3	90,000	H. T. steel	1938	Co. shops
Chicago, Rock Island & Pacific.....	8[5]	.....	....	330,500[6]	Stain. steel	1937	Edw. G. Budd
	12[5]	.....	....	262,300[6]	Stain. steel	1937	Edw. G. Budd
	10	Coach	78– 6 1/2	113,300	H. T. steel	1938	Pull.-Std.
	2	Bagg.-mail	67– 0	80,034	Stain. steel	1939	Edw. G. Budd
	2	Bagg.	67– 8	79,950	Stain. steel	1939	Edw. G. Budd
	2	Coach-mail	79– 8	106,940	Stain. steel	1939	Edw. G. Budd
	4	Coach	79– 8	104,710	Stain. steel	1939	Edw. G. Budd
	2	Diner	83– 0	114,000	Stain. steel	1939	Edw. G. Budd
	4	Chair	79– 8	107,456	H. T. steel	1940	Pull.-Std.
	2	Chair	83– 0	109,281	frame–Stain.	1940	Pull.-Std.
	4	Diner-lounge-obs.	79– 8	113,438	steel sheathing	1940	Pull.-Std.
Colorado & Southern.....	2	Chair	79– 8	.....	Stain. steel	1938	Edw. G. Budd
	1	Mail-exp.	88– 8	98,965	Stain. steel	1940	Edw. G. Budd
	1	Bagg.-dorm.-coach	88– 8	110,050	Stain. steel	1940	Edw. G. Budd
	1	Diner-lounge-obs.	....	117,235	Stain. steel	1940	Edw. G. Budd
Delaware & Hudson.....	6	Coach	84– 9	115,000	H. T. steel	1939	American Car & Fdry.
Florida East Coast.....	6	Coach	85– 0	105,750	Stain. steel	1939	Edw. G. Budd
	2	Coach-hostess	85– 0	106,810	Stain. steel	1939	Edw. G. Budd
	2	Diner-	85– 0	113,800	Stain. steel	1939	Edw. G. Budd
	1	Coach-bagg.-dorm.	85– 0	107,505	Stain. steel	1939	Edw. G. Budd
	1	Coach-bagg.-dorm.	85– 0	106,200	Stain. steel	1939	Edw. G. Budd
	2	Tavern-lounge-obs.	85– 0	105,895	Stain. steel	1939	Edw. G. Budd
Ft. Worth & Denver City.....	4	Coach	79–10	95,465	Stain. steel	1937	Edw. G. Budd
	1	Mail-exp.	88– 8	98,965	Stain. steel	1940	Edw. G. Budd
	1	Bagg. coach	88– 8	110,050	Stain. steel	1940	Edw. G. Budd
	1	Diner-lounge-obs.	88– 7	117,235	Stain. steel	1940	Edw. G. Budd
Great Northern.....	1	Coach	85– 0	.....	H. T. & stain. steel	[1]	Pacific Ry. Equip. Co.
Gulf, Mobile & Northern.....	3	Coach	75–10	94,000	H. T. steel	1935	American Car & Fdry.
	2	Obs.-sleeper.....	77– 0	93,200	H. T. steel	1935	American Car & Fdry.
	2	Motor-bagg.	73– 4	175,800	H. T. steel	1935	American Car & Fdry.
	2	Sleeper-coach	77– 6 1/2	108,900	H. T. steel	1937	American Car & Fdry.
	1	Motor-bagg.	73– 4	179,400	H. T. steel	1937	American Car & Fdry.

[1]On order.

[2]Steel frames from builder; cars built in railroad shops.

[3]Articulated units, including combination power unit.

[4]Length and weight of train as a whole.

[5]Car-body units of partially or wholly articulated trains.

[6]The larger weight is of a four-unit train; the smaller, of a three-unit train.

[7]Abbreviations for accommodations are: BR—bedroom; db. BR—double bedroom; MBR—master bedroom; compt.—compartment; DR—drawing room; lge.—lounge; cl. sec.—enclosed section; dup.—duplex bedroom. Pullman lightweight cars are of three types of construction: (1) high-tensile alloy-steel, welded-girder construction; (2) high-tensile alloy-steel, welded-truss construction with stainless-steel sheathing, and (3) aluminum-alloy riveted-girder construction. In the table "H. T. steel" alone indicates (1), "H. T. steel-T," (2), and "Alum. alloy", (3). In the exceptions where steel construction was riveted, this is indicated by the suffix "R". The weights of individual cars of the various types of construction vary considerably because of differences in the trucks and other equipment made, in many cases, to conform to the desires of the railroads to which the cars are assigned. For that reason they are misleading when used for comparisons. In general, the car of high-tensile, alloy-steel girder construction weighs one third less than the older cars built of carbon steel for similar floor plans. The same car would weigh six per cent less than the lightweight girder car if of aluminum-alloy construction and two per cent less if of high-tensile truss construction. The years ordered and not the years built are given for Pullman Company's cars. There is some duplication between the Pullman list and the lists of the Union Pacific and the Union Pacific-Chicago & North Western-Southern Pacific. This amounts to 34 sleeping-car body units operating in articulated trains.

[8]Weight of diner and kitchen units combined.

[9]Three square end; three round end.

Passenger Coaches and Body Units of Articulated Trains in Which the New Structural Materials and New Methods of Fabrication Have Been Used to Reduce Weight—Continued

Road	No. cars	Class	Length, ft.-in.	Weight, lb.	Structural material	Year built	Builder
Illinois Central	4[5]	.....	....	311,800[4]	H. T. steel and alum.	1937	Pull.-Std.
	1	Bagg.-dorm.-coach	84– 6	106,054	H. T. steel	1940	Pull.-Std.
	1	Coach	84– 6	110,196	H. T. steel	1940	Pull.-Std.
	3	Coach	84– 6	107,728	H. T. steel	1940	Pull.-Std.
	1	Diner	84– 6	117,092	H. T. steel	1940	Pull.-Std.
	1	Lounge-bar-obs.	84– 7	107,048	H. T. steel	1940	Pull.-Std.
Kansas City Southern	4	Coach	83– 5	111,600	H. T. steel	1937	Pull.-Std.
Kansas City Southern-Louisiana & Arkansas	3	Mail-bagg.	84– 6	98,200	Alum. alloy	1940	Pull.-Std.
	5	Chair	84– 6	106,750	Alum. alloy	1940	Pull.-Std.
	3	Parlor-obs.-diner	84– 7	112,250	Alum. alloy	1940	Pull.-Std.
Lehigh Valley	5	Coach	74– 9	114,800	H. T. steel frame-stain. steel sheathing	1939	Pull.-Std.
	5	Coach	74– 9	113,200		1939	Pull.-Std.
Missouri Pacific	2	Mail-bagg.	72–10	88,250	Alum. alloy	1940	American Car & Fdry.
	2	Mail-exp.	72–10	85,350	Alum. alloy	1940	American Car & Fdry.
	2	Coach	84– 6	106,160	Alum. alloy	1940	American Car & Fdry.
	2	de luxe coach	84– 6	106,660	Alum. alloy	1940	American Car & Fdry.
	2	Diner-bar-lounge	84– 6	123,840	Alum. alloy	1940	American Car & Fdry.
	2	Parlor-obs.	84– 6	103,860	Alum. alloy	1940	American Car & Fdry.
	1	Coach-mail	84– 6	125,000	H. T. steel	1	St. Louis Car
	1	Coach-grille	84– 6	128,700	H. T. steel	1	St. Louis Car
New York Central	6	Diner	84– 6	135,300	H. T. steel	1938	Pull.-Std.
	2	Coach	79–10	96,500	Stain. steel	1938	Edw. G. Budd
	4	Mail-bagg.	84– 6	124,400	H. T. steel	1938	Pull.-Std.
	1	Coach	84– 8	107,985	Stain. steel	1939	Edw. G. Budd
	1	Coach	84– 8	107,985	Stain. steel	1940	Edw. G. Budd
New York, New Haven & Hartford	3[3]	.....	.....	260,600[4]	Alum. alloy	1935	Goodyear-Zep.
	50	Coach	80– 0	107,500	H. T. steel	1935	Pull.-Bradley
	50	Coach	82– 4½	107,000	H. T. steel	1936	Pull.-Std.
	50	Coaches	82– 4½	108,000	H. T. steel	1937	Pull.-Std.
	5	Grille	82– 4½	118,000	H. T. steel	1937	Pull.-Std.
	50	Coach	82– 4½	108,000	H. T. steel	1938	Pull.-Std.
Pennsylvania	2	Diner	84– 8	105,600	Stain. steel	1938	Edw. G. Budd
	2	Coach	84– 8	105,000	Stain. steel	1939	Edw. G. Budd
	5	Diner	84– 6	113,300	Alum. alloy	1939	Pull.-Std.
	5	Diner	84– 6	113,300	H. T. steel	1939	American Car & Fdry.
	5	Diner	84– 8	117,890	Stain. steel	1939	Edw. G. Budd
	12	Coach	84– 8	104,905	Stain. steel	1939	Edw. G. Budd
	1	Coach	84– 8	106,180	Stain. steel	1939	Edw. G. Budd
	3	Coach	84– 8	107,585	Stain. steel	1939	Edw. G. Budd
	1	Coach	85– 0	.....	Stain. steel	1940	Edw. G. Budd
	5	Coach	85– 0	.....	Stain. steel	1	Edw. G. Budd
	1	Obs.-diner	85– 0	.....	Stain. steel	1	Edw. G. Budd
	1	Diner	85– 0	.....	Stain. steel	1	Edw. G. Budd
	1	Pass.-bagg.-dorm.	85– 0	.....	Stain. steel	1	Edw. G. Budd
	2	Coach	85– 0	.....	Stain. steel	1	Edw. G. Budd
	4	Coach	85– 0	.....	Stain. steel	1	Edw. G. Budd
Pullman Co.[7]	1	3BR-1 comp.-DR-lge-obs.	....	.....	Alum. alloy	1931	Pull.-Std.
	2[5]	8 Cl. sec.-compt.-BR	....	.....	Alum. alloy	1933	Pull.-Std.
	2[5]	10 Cl. sec.-comp.-BR	....	.....	Alum. alloy	1933	Pull.-Std.
	4[5]	11 sec.	....	.....	Alum. alloy	1934	Pull.-Std.
	2[5]	2 comp.-7 BR	....	.....	Alum. alloy	1934	Pull.-Std.
	2[5]	11 Cl. sec.	....	.....	Alum. alloy	1934	Pull.-Std.
	1	16 dup.	....	.....	H. T. steel-R	1935	Pull.-Std.
	1	1 comp.-3 BR-lge.-obs.					
	4[5]	12 sec.	....	.....	Alum. alloy	1935	Pull.-Std.
	2[5]	1 comp.-1 BR-8 sec.	....	.....	Alum. alloy	1935	Pull.-Std.
	2[5]	1 comp.-5 BR-obs.	....	.....	Alum. alloy	1935	Pull.-Std.
	1	8 sec.-2 BR-2 comp.	....	.....	H. T. steel-T	1936	Pull.-Std.
	4[5]	12 sec.	....	.....	Alum. alloy	1937	Pull.-Std.
	4[5]	4 comp.-3 DR	....	.....	Alum. alloy	1937	Pull.-Std.
	2[5]	11 BR	....	.....	Alum. alloy	1937	Pull.-Std.
	2[5]	5 BR-12 dup.	....	.....	Alum. alloy	1937	Pull.-Std.
	1[5]	13 roomette.-1 O. sec.	....	.....	Alum. alloy	1937	Pull.-Std.
	1[5]	18 roomette	....	.....	Alum. alloy	1937	Pull.-Std.
	1[5]	12 Cl. sec.	....	.....	Alum. alloy	1937	Pull.-Std.
	1	18 roomette	....	.....	H. T. steel	1937	Pull.-Std.
	14	2 comp.-2 BR-8 sec.	....	.....	H. T. steel-T	1937	Pull.-Std.
	6	14 sec.	....	.....	H. T. steel-T	1937	Pull.-Std.
	7	17 roomette.-1 sec.	....	.....	H. T. steel-T	1937	Pull.-Std.
	12	2 DR-4 comp.-4 BR	....	.....	H. T. steel-T	1937	Pull.-Std.
	7	4 DR-1 BR-obs.	....	.....	H. T. steel-T	1937	Pull.-Std.
	9	5 BR-12 dup.	....	.....	H. T. steel	1937	Pull.-Std.
	13	18 roomette	....	.....	H. T. steel	1937	Pull.-Std.
	10	17 roomette.-1 sec.	....	.....	H. T. steel	1937	Pull.-Std.
	20	2 DR-4 comp.-4 BR	....	.....	H. T. steel	1937	Pull.-Std.
	12	13 BR	....	.....	H. T. steel	1937	Pull.-Std.
	14	5 BR-10 roomette.	....	.....	H. T. steel	1937	Pull.-Std.
	4	Dorm.-bar. shop-bar lge.	....	.....	H. T. steel	1937	Pull.-Std.
	4	1 MBR-1 BR-buf. obs.	....	.....	H. T. steel	1937	Pull.-Std.
	4	2 MBR-1 BR-buf. obs.	....	.....	H. T. steel	1937	Pull.-Std.
	3	2 db. BR-1 comp.-1 BR-buf. obs.	....	.....	H. T. steel	1937	Pull.-Std.
	2	Sec'y.-bar. shop- BR-bar lge.	....	.....	H. T. steel	1937	Pull.-Std.
	9	3 db. BR-DR-bar-lge.	....	.....	H. T. steel	1937	Pull.-Std.
	2	2 comp.-2 BR-8 sec.	....	.....	H. T. steel-T	1937	Pull.-Std.
	1	17 roomette.-1 sec.	....	.....	H. T. steel-T	1937	Pull.-Std.
	2	2 DR-4 comp.-4 BR	....	.....	H. T. steel-T	1937	Pull.-Std.
	27	18 roomette	....	.....	H. T. steel	1938	Pull.-Std.
	14	10 roomette-5 db. BR	....	.....	H. T. steel	1938	Pull.-Std.
	6	12 dup.-5 BR	....	.....	H. T. steel	1938	Pull.-Std.
	4	2 BR-comp.-DR-obs.	....	.....	H. T. steel	1938	Pull.-Std.
	2	4 BR-4 roomette-3 comp.-DR	....	.....	Alum. alloy	1938	Pull.-Std.
	15	2 DR-4 comp.-4 db. BR	....	.....	H. T. steel	1938	Pull.-Std.
	10	13 db. BR	....	.....	H. T. steel	1938	Pull.-Std.
	6	6 BR-lge.	....	.....	H. T. steel	1938	Pull.-Std.
	2	8 sec.-2 comp.-2 BR	....	.....	H. T. steel-T	1939	Pull.-Std.
	2	4 roomette-10 sec.	....	.....	H. T. steel-T	1939	Pull.-Std.
	2	5 BR-buf. lge.-obs.	....	.....	H. T. steel-T	1939	Pull.-Std.
	6	2 DR-4 comp.-4 db. BR	....	.....	H. T. steel-T	1939	Pull.-Std.
	15	2 DR-4 comp.-4 db. BR	....	.....	H. T. steel	1939	Pull.-Std.
	8	5 BR-10 roomette	....	.....	H. T. steel	1939	Pull.-Std.
	1	2 BR-1 comp.-1 DR	....	.....	H. T. steel-T	1939	Pull.-Std.
	46	10 roomette-5 db. BR	....	.....	H. T. steel	1939	Pull.-Std.
	4	12 dup.-5 db. BR	....	.....	H. T. steel	1939	Pull.-Std.
	25	6 db. BR-buf.-lge.	....	.....	H. T. steel	1939	Pull.-Std.

Passenger Coaches and Body Units of Articulated Trains in Which the New Structural Materials and New Methods of Fabrication Have Been Used to Reduce Weight—Continued

Road	No. cars	Class	Length, ft.-in.	Weight, lb.	Structural material	Year built	Builder
Pullman Co. (Continued)	6	18 roomette	....	.....	H. T. steel	1939	Pull.-Std.
	8	13 db. BR	....	.....	H. T. steel	1939	Pull.-Std.
	4	8 sec.-5 db. BR	....	.....	H. T. steel-T	1940	Pull.-Std.
	19	4 comp.-4 db. BR-2 DR	....	.....	Alum. alloy	1940	Pull.-Std.
	2	10 roomette-5 db. BR	....	.....	Alum. alloy	1940	Pull.-Std.
	2	4 db. BR-buf. lge.-obs.	....	.....	Alum. alloy	1940	Pull.-Std.
	10	10 roomette-5 db. BR	....	.....	H. T. steel	1940	Pull.-Std.
	6	4 comp.-4 db. BR-2 DR	....	.....	H. T. steel	1940	Pull.-Std.
	8	13 db. BR	....	.....	H. T. steel	1940	Pull.-Std.
	2	1 DR-1 comp.-2 db. BR-buf.-obs.	....	.....	H. T. steel	1940	Pull.-Std.
Reading	2	Coach-obs.	83– 6½	99,000	Stain. steel	1937	Edw. G. Budd
	2	Coach	79–10	95,900	Stain. steel	1937	Edw. G. Budd
	1	Diner	82–10	110,400	Stain. steel	1937	Edw. G. Budd
St. Louis-Southwestern	10	Coach	82– 4¼	117,700	H. T. steel	1937	Pull.-Std.
Seaboard Air Line	6	Coach	82– 4½	112,400	H. T. steel	1936	Pull.-Std.
	4	Pass.-bagg.	82– 4½	109,700	H. T. steel	1936	Pull.-Std.
	1	Pass.-bagg.	84– 8	108,000	Stain. steel	1939	Edw. G. Budd
	3	Coach	84– 8	102,700	Stain. steel	1939	Edw. G. Budd
	1	Coach-tav.	84– 8	107,300	Stain. steel	1939	Edw. G. Budd
	1	Diner	84– 8	123,900	Stain. steel	1939	Edw. G. Budd
	1	Coach-obs.	84–10	100,100	Stain. steel	1939	Edw. G. Budd
	2	Pass.-bagg.-dorm.	85– 0	106,850	Stain. steel	1939	Edw. G. Budd
	5	Coach	85– 0	103,680	Stain. steel	1939	Edw. G. Budd
	1	Diner-lounge	85– 0	115,750	Stain. steel	1939	Edw. G. Budd
	2	Coach-tavern	85– 0	108,340	Stain. steel	1939	Edw. G. Budd
	2	Diner	85– 0	114,750	Stain. steel	1939	Edw. G. Budd
	2	Coach-obs.	85– 2	101,830	Stain. steel	1939	Edw. G. Budd
	7	Coach	85– 0	.....	Stain. steel	1	Edw. G. Budd
	2	Diner-lounge	85– 0	.....	Stain. steel	1	Edw. G. Budd
	3	Coach-obs.	85– 0	.....	Stain. steel	1	Edw. G. Budd
	3	Pass.-bagg.-dorm	85– 0	.....	Stain. steel	1	Edw. G. Budd
Southern	4	Coach	72– 9	114,700	H. T. steel	1939	St. Louis Car
	4	Motor-bagg.	80– 0	228,200	H. T. steel	1939	St. Louis Car
	6	Pass.-bagg.	....	.....	....	1	Pull.-Std.
	6	Part'n coach	....	.....	....	1	Pull.-Std.
	18	Coach	....	.....	....	1	Pull.-Std.
	5	Diner	....	.....	....	1	Pull.-Std.
	6[9]	Obs.-lounge-taproom	....	.....	....	1	Pull.-Std.
	4	Mail-bagg.	....	.....	....	1	Pull.-Std.
	2	Mail-storage	....	.....	....	1	Pull.-Std.
Southern Pacific	2	Coach-bagg.	79– 2	104,300	H. T. steel	1937	Pull.-Std.
	2	Coach	79– 2	104,300	H. T. steel	1937	Pull.-Std.
	12[5]	Coach	66– 1	85,200	H. T. steel	1937	Pull.-Std.
	4	Tavern	79– 2	116,500	H. T. steel	1937	Pull.-Std.
	4	Diner	79– 2	115,700	H. T. steel	1937	Pull.-Std.
	4	Parlor	79– 2	103,400	H. T. steel	1937	Pull.-Std.
	2	Parlor-obs.	78– 1¼	101,000	H. T. steel	1937	Pull.-Std.
	2	Bagg.	79– 2	92,000	H. T. steel	1937	Pull.-Std.
	17	Coach	79– 2	106,300	H. T. steel	1937	Pull.-Std.
	18[5]	.....	66– 1	86,100	H. T. steel	1937	Pull.-Std.
	2	Coffee-shop	79– 2	.....	Alum. alloy	1937	Pull.-Std.
	2[5]	Chair-bagg.	81– 0	116,620	H. T. alloy steel frame-stain. Steel sheathing	1939	Pull.-Std.
	2[5]	Coffee	72– 0	107,470		1939	Pull.-Std.
	2[5]	Kitchen	59– 6	87,180		1939	Pull.-Std.
	2[5]	Diner	72– 0	105,870		1939	Pull.-Std.
	2[5]	Parlor-obs.	80–½	115,200		1939	Pull.-Std.
	2	Tavern	81– 0	117,090		1939	Pull.-Std.
	2	Parlor	81– 0	116,960		1939	Pull.-Std.
	2	Chair	81– 0	117,840		1939	Pull.-Std.
	6[5]	Chair (men)	68– 0	97,290		1939	Pull.-Std.
	6[5]	Chair (women)	68– 0	97,350		1939	Pull.-Std.
	51	.....	....	.....	....	1	Pull.-Std.
Texas & New Orleans	2	Bagg.	79– 2	92,100	H. T. steel	1937	Pull.-Std.
	2	Coach	79– 2	106,300	H. T. steel	1937	Pull.-Std.
	8[5]	Coach	66– 1	89,800	H. T. steel	1937	Pull.-Std.
	2	Parlor	79– 2	113,500	H. T. steel	1937	Pull.-Std.
	2	Diner-lounge	79– 2	106,500	H. T. steel	1937	Pull.-Std.
Union Pacific	3[3]	.....	....	204,660[4]	Alum. alloy	1934	Pullman
	5[5]	.....	....	257,000[4]	Alum. alloy	1934	Pullman
	18[5]	.....	....	670,000[4]	Alum. alloy	1935	Pullman
	20[5]	.....	....	998,000[4]	Alum. alloy	1936	Pull.-Std.
	2[5]	Diner-lounge	....	62,300	Alum. alloy	1935	Pull.-Std.
	1[5]	Kitchen-diner-lounge	....	58,200	Alum. alloy	1935	Pull.-Std.
	40	Coach	81– 0	110,500	Alum. alloy	1937	Pull.-Std.
	5[5]	Diner	70– 0	207,700[8]	Alum. alloy	1938	Pull.-Std.
	5[5]	Kitchens	70– 0				
Union Pacific-Chicago & North Western	14[5]	.....	....	1,622,700[4]	Alum. alloy	1937	Pull.-Std.
Union Pacific-Chicago & North Western—Southern Pacific	14[5]	.....	....	1,581,200[4]	Alum. alloy	1937	Pull.-Std.
	2	Bagg.-dorm.	84– 6	118,356	Alum. alloy	1	Pull.-Std.
	3	Chair	84– 9	124,975	Alum. alloy	1	Pull.-Std.
	2	Cafe-lounge	84– 6	126,566	Alum. alloy	1	Pull.-Std.
	2	Diner	84– 6	128,559	Alum. alloy	1	Pull.-Std.
	1[5]	Diner-kitchen	72– 0	118,578	Alum. alloy	1	Pull.-Std.
	1[5]	Diner	72– 0	112,390	Alum. alloy	1	Pull.-Std.
	2	Club	84– 6	126,525	Alum. alloy	1	Pull.-Std.
	1	Dorm.-club	84– 6	129,958	Alum. alloy	1	Pull.-Std.

[1] On order.

[2] Steel frames from builder; cars built in railroad shops.

[3] Articulated units, including combination power unit.

[4] Length and weight of train as a whole.

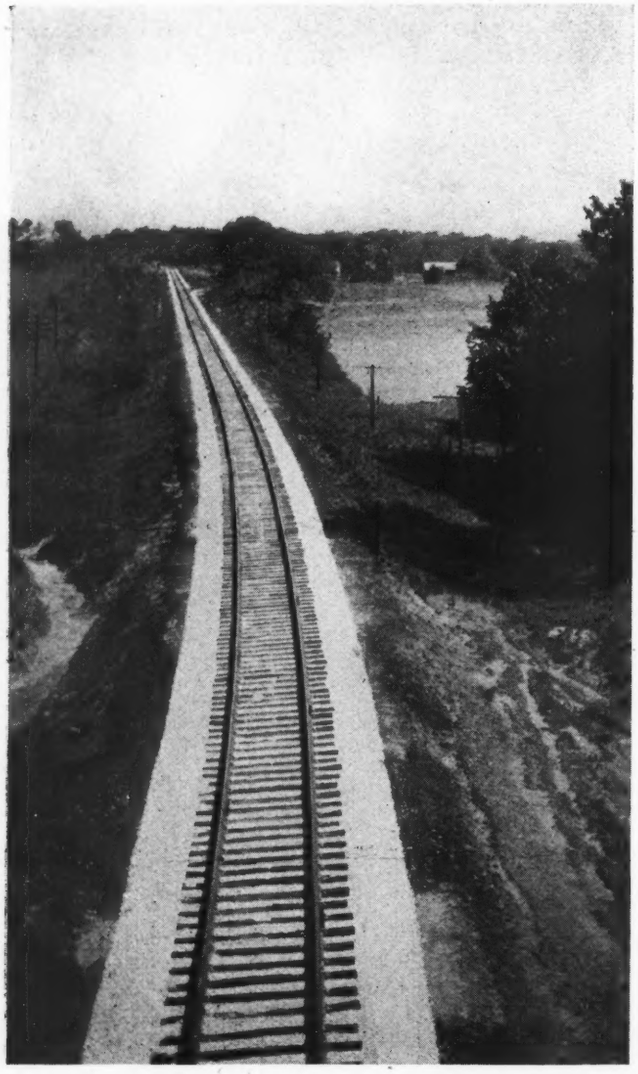
[5] Car-body units of partially or wholly articulated trains.

[6] The larger weight is of a four-unit train; the smaller, of a three-unit train.

[7] Abbreviations for accommodations are: BR—bedroom; db. BR—double bedroom; MBR—master bedroom; compt.—compartment; DR—drawing room; lge.—lounge; cl. sec.—enclosed section; dup.—duplex bedroom. Pullman lightweight cars are of three types of construction: (1) high-tensile alloy-steel, welded girder construction; (2) high-tensile alloy-steel, welded-truss construction with stainless-steel sheathing, and (3) aluminum-alloy riveted-girder construction. In the table "H. T. steel" alone indicates (1), "H. T. steel-T," (2), and "Alum. alloy", (3). In the exceptions where steel construction was riveted, this is indicated by the suffix "R". The weights of individual cars of the various types of construction vary considerably because of differences in the trucks and other equipment made, in many cases, to conform to the desires of the railroads to which the cars are assigned. For that reason they are misleading when used for comparisons. In general, the car of high-tensile. alloy-steel girder construction weighs one third less than the older cars built of carbon steel for similar floor plans. The same car would weigh six per cent less than the lightweight girder car if of aluminum-alloy construction and two per cent less if of high-tensile truss construction. The years ordered and not the years built are given for Pullman Company's cars. There is some duplication between the Pullman list and the lists of the Union Pacific and the Union Pacific-Chicago & North Western-Southern Pacific. This amounts to 34 sleeping-car body units operating in articulated trains.

[8] Weight of diner and kitchen units combined.

[9] Three square end; three round end.



On the Route of the Rocket in Oklahoma

High Speeds Demand Good Track

Reduction of curvature, grade separations, new coal and water facilities and streamlining of stations grow out of shortened schedules

GOOD track and good alinement are essential to the operation of high-speed trains. Track that does not ride smoothly creates discomfort, which increases with the speed. Curves limit speed, and thus present a serious obstacle to high-speed schedules. In preparation for high-speed passenger service, not a few roads have eliminated or reduced certain curves to allow higher speeds, as well as sustained high speed over greater distances. Experience with shortened schedules has demonstrated the undesirable effects of repeated acceleration and deceleration and has emphasized that the best operation is obtained when the variations from the average speed are kept at the minimum.

Must Go Still Further

To permit an approach to ideal operation, in which only minor variations from the average speed will be required, a number of roads are finding it desirable to go still further than was first thought to be warranted, in revising the alinement of their tracks at many points to remove these restrictions to their schedules. In some cases this is being done progressively from some selected point to provide an increasing distance over which speed can be maintained at a uniformly high level, in others, the points of greatest restriction are being given preferred attention; while in still others the procedure is a combination of these two methods.

Up to the present, however, despite the considerable volume of this work that has been completed, only a very small part of the curve reduction that is already considered necessary has been undertaken, and the far larger part of this improvement work remains for the future. In this connection, it should not be overlooked that we are today only at the threshold of an era of speed, the magnitude and probable developments of which few yet realize, and that curves which are considered satisfactory from today's viewpoint are likely to cause intolerable restrictions in the near future. Furthermore, as the demand for high-speed passenger service spreads to other lines, as it is doing quite steadily, the total amount of work of this character that will be needed will be increased many fold. It may be expected, therefore, that the volume of this work in the future will approximate that of the grade reductions which only a few years ago were a major feature of railway construction, but which today, in the light of constantly shortening schedules, have become of secondary importance.

Crossing Hazards Increase

While grade crossings do not offer the same physical obstacles to sustained speed that curves do, it is often imperative, particularly in cities and other densely populated areas where special hazards exist, to reduce speed at certain crossings or series of crossings at grade, so that the effect on train schedule is the same as if a physical obstruction existed. Again, with the steady in-

crease in speed that has characterized all schedules in recent years, and particularly with the spectacular speeds of the light weight streamlined trains, the hazards of the grade crossing have greatly increased, and crossings that were formerly considered of secondary importance are now assuming a new prominence because of these added hazards.

For many years the railways have been desirous of eliminating highway crossings at grade and have spent millions of dollars to do so. Since the advent of the automobile, much pressure has been exerted by the public and by public authorities to induce the railways to accelerate grade separations, but as these demands have almost invariably been accompanied by proposals calling for unjust distribution of the costs for doing the work, the railways have been unable to finance more than a relatively few of the large number of projects thus proposed. More recently there has been a change of viewpoint, and the responsibility of the public for the elimination of grade crossings has been recognized generally. With the appropriation of federal funds for this purpose, grade separations have been carried out at an unprecedented rate during the last five or six years. For these reasons, grade-crossing elimination, which has represented the greatest activity in the railway construction field during this period, is likely to continue at its present level for some years to come.

Slow Orders Must Go

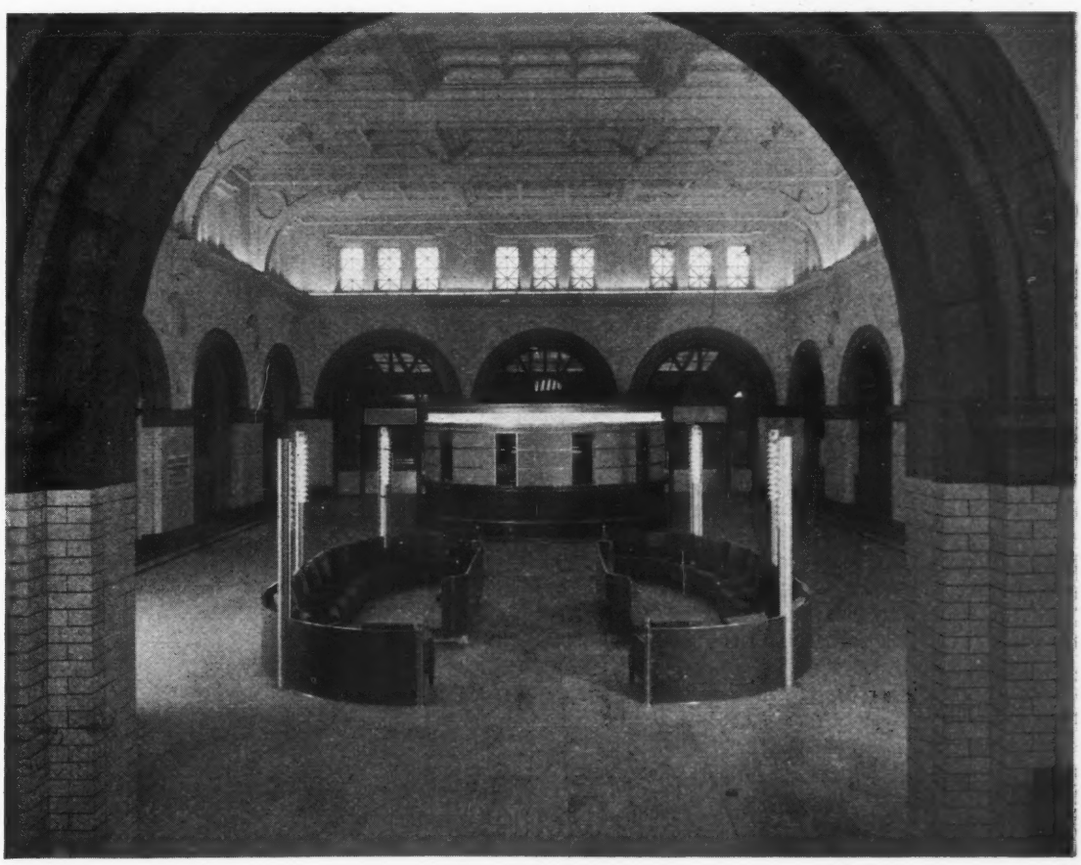
Obviously, the elimination of these obstacles to high-speed will do much to improve train operation and will pave the way for still higher speeds, and the higher the average speed, the greater will be the benefit derived from their removal. The reductions in speed that have been discussed so far have been those that can be foreseen and that must be taken into account in preparing a schedule. Any further unscheduled reduction in speed causes a comparable loss of time which, because it is unscheduled, must be made up by speeds that are not only correspondingly higher than the average, but higher than those provided for in the schedule, and which must be maintained for a distance many times that involved in slowing down the train.

For many years, beyond the memory of the men who are oldest in railway service, slow orders have been used freely by both the track and bridge forces to facilitate their work. Today, there are definite limitations to the use of slow orders on all lines over which high-speed trains are being operated and in not a few cases they are barred altogether, except in emergencies where safety is involved. In other words, the maintenance forces are being educated to revise their methods of doing work in such a way that it will no longer be necessary to create obstructions to the passage of trains at full speed.

Work Equipment a Big Help

It is not surprising, therefore, in view of this limitation, that the maintenance forces, including those engaged in both track and bridge maintenance, are turning more and more to power machines and tools to aid them in their work and make it possible to do this work without interfering with train schedules, and that they are using these machines to the fullest extent possible. These include tie-tamping equipment, bolt tighteners, spike pullers, spike drivers, tie adzers, rail grinders, ballast cleaners, ditching and trenching machines, draglines, power shovels, welding outfits, rail cranes, locomotive cranes, bridge derricks, pile drivers and other machines and tools suitable for constructing and maintaining bridges, laying rail, ballasting, renewing ties, draining the roadbed and day by day routine track maintenance.

While equipment with rail mountings is of definite



Streamlining Made a Striking Station Out of an Outmoded Passenger Facility

There Are No Slow Orders on These Tracks

assistance in removing the necessity for slow orders, in that it is capable of accelerating the rate at which work can be done, many of the machines that have been mentioned cannot be removed readily from the track and, therefore, lose time in clearing trains, particularly on lines of dense traffic. Furthermore, there is always the possibility that under the exigencies of the work the equipment will not be placed in the clear as soon as required, and will thus cause delays to scheduled trains. So important has it become that such interference shall not occur that there is a constantly increasing trend towards the use of off-track units for all purposes for which such equipment is suitable.

Speeding Slower Trains

Reference has already been made to the need for removing all obstacles to the maintenance of uniform speed for trains running on shortened schedules. On the other hand, these shortened schedules tend to interfere with the movement of slower trains moving in either direction on single track or in the same direction as the faster train on double track. As a means of overcoming this difficulty, the passing siding has assumed a role of greater prominence, especially on those lines that are equipped with centralized traffic control. Particularly, on busy single track, these sidings become of paramount importance for they should be of such length as to increase the possibility of both trains executing the meeting or passing movement without stopping, and at such spacing that the slower trains will not suffer serious delay. They must also be constructed and maintained to a higher standard than formerly, for trains must move through them at speeds far higher than was necessary when they were expected merely to get into and stay in the clear.

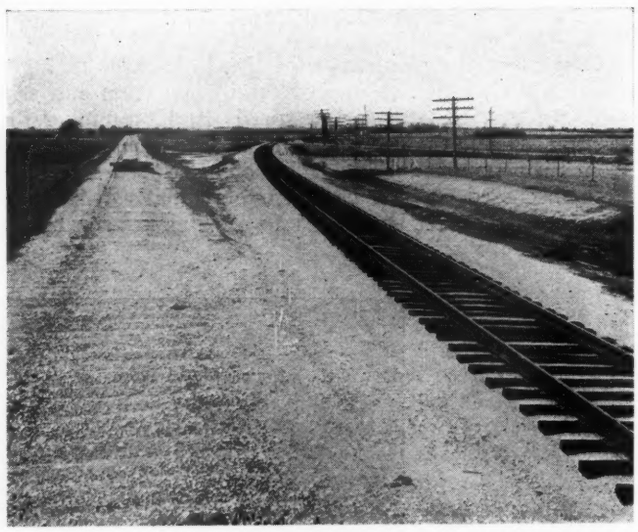
High-Speed Turnouts Installed

Incidental to the acceleration of these meeting and passing movements, power-operated, remotely controlled switches and spring switches are being installed at the ends of passing sidings, in connection with longer turnouts, to avoid stopping trains when they enter or leave the sidings, as well as to make higher speeds through the turnouts practicable. In the same way, to minimize the loss of time incurred by slowing down at junctions, at the ends of double track and at other points of diversion, it is becoming increasingly the practice to install high-speed turnouts designed to permit movements through them up to 55 or 60 miles an hour.

As a safety measure, it is also becoming general practice to remove facing-point switches on double-track lines where this is feasible and, where it is not, to install switch-point locking to insure that the points will always be closed when the switch is set for the through route. Similar locking is being applied to all switches on single track. As a further extension of this idea, all turn-outs are being removed from curves on those lines where high-speed trains are in service.

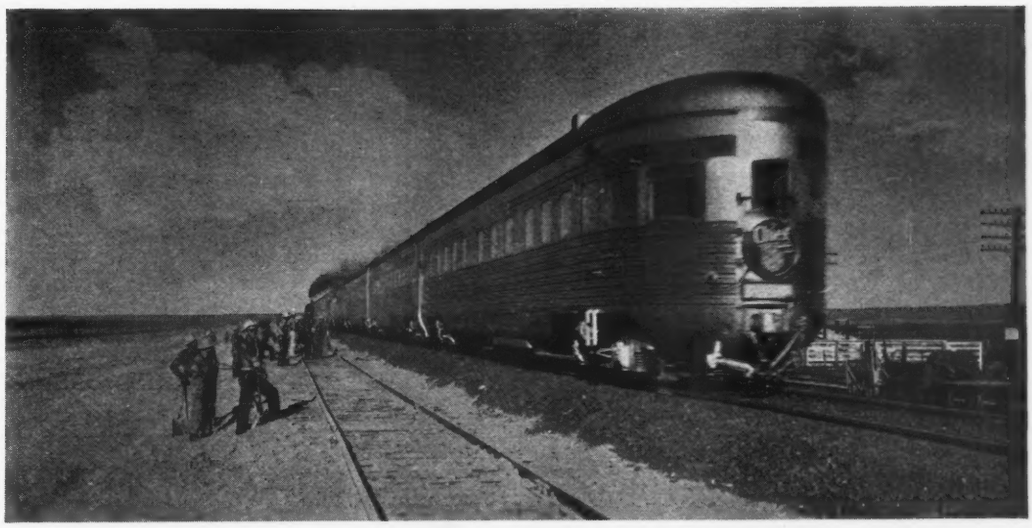
Changes in Fuel and Water Facilities

In the scheduling of high-speed trains certain factors are involved that were either not present or were ignored previously. Experience has demonstrated that serious delays can occur through inadequate or improperly located fuel and water facilities. It has also shown the value of ample water and coal capacity on steam locomotives engaged in high-speed service. Because of the adverse effect of these deficiencies in fuel and water facilities on the schedules of steam-operated trains, it has been found necessary both to relocate and to enlarge numerous water stations, for the larger-capacity locomotive tenders not only reduce the number of stops for water and thus permit a wider spacing of water stations, but create a correspondingly greater draft on those stations where it is taken.



Curves Limit Speeds and Must Be Reduced

When locomotive tenders had a water capacity of 6,000 to 7,500 gal., the rate at which water was delivered seldom came into question, and rates of delivery averaged around 1,500 gal. a min., with 2,500 gal. as the maximum. Today, with 22,500 gal. as a common capacity for the tenders of the larger locomotives assigned to high-speed service, these rates of delivery require from 9 to 15 min. to fill a tank, a delay that cannot be tolerated where every minute counts and where time lost is



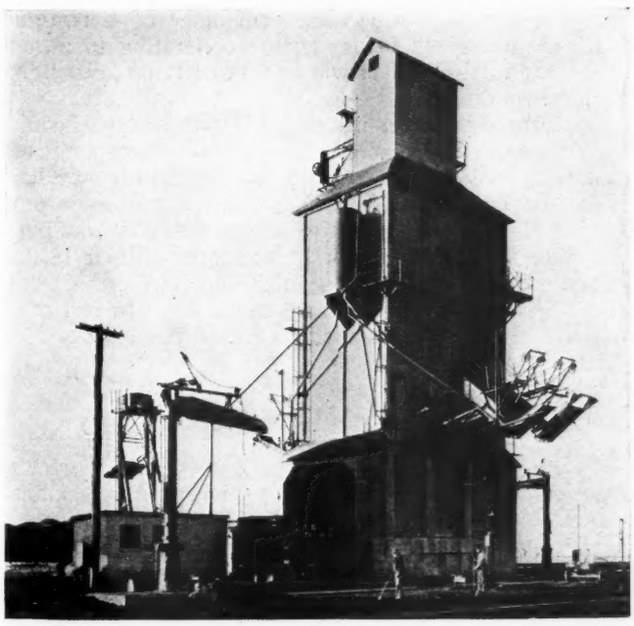
High Speeds Are Requiring Greater Efforts in Track Maintenance

not easily recovered. For this reason, there has been a general movement toward increasing the rate of delivery to as much as 4,000 to 5,000 gal. a minute, to make it possible to complete the taking of water by the time the station work is completed at regular stops. In other instances, coal and water facilities are being so designed that both water and fuel can be taken during a single stop, thus materially reducing the time required for these necessary operations.

Steamlining Stations

Another development that has grown directly out of the design and operation of high-speed trains and is closely tied up with them, although it has no direct connection with their operation or with the schedules upon which they run, is the streamlining of passenger stations. Through a long period of declining passenger revenues, the construction and remodeling of passenger stations practically ceased, while the shrinkage of all revenues subsequent to 1929 resulted in the same situation with respect to the maintenance of these facilities. The result has been that in the face of increasing passenger traffic, patrons are still being routed through stations that are obsolete, poorly maintained, generally unattractive and, in some cases, wholly unfit for the purpose, to reach trains of the latest and most attractive designs, which have been highly dramatized in advertising and other forms of publicity.

Recognizing that this is a poor way to start a passenger on his journey and is in the nature of an anti-climax when he is set down at his destination, some of the more alert roads are employing the same methods and similar motifs to modernize their stations as were utilized in the design of the streamlined cars. This form of modernization, which uses the latest structural materials, and the most modern forms of fluorescent lighting, with heating and plumbing to correspond, has caught the popular fancy to almost the same extent as the trains themselves. For this reason, while the development is yet in its infancy, it may be expected to expand into a general movement.



Shortened Schedules Have Necessitated the Relocation of Coal and Water Facilities in Many Instances

Good Track is Fundamental Requirement

While in large part the popularity of the high-speed trains can be traced to the manner in which they have been dramatized; to the attractive designs, both exterior and interior, which have been employed in their construction; to the conveniences and personal service with which they are provided; and to the shortened schedules upon which they run; one of the strongest appeals they make to those who patronize them is their comfortable-riding qualities at even the highest speeds. Obviously, this is a quality that depends on smooth track, for no train can be expected to ride better than the track over which it runs. Furthermore, it is axiomatic that the popularity that these trains enjoy cannot be expected to continue unless the good-riding qualities of the track are maintained.

During the six years since high-speed passenger trains were first placed in service, no question has arisen as to the ability of the track to meet the demands imposed upon it by these higher speeds. On the other hand, these new trains have created a new conception with reference to excellence of track, for experience has demonstrated what trackmen had known somewhat academically before, that the effects of irregularities in line, sur-

(*Continued on page 762*)

Faster Trains

New automatic block signal systems, easily manipulated interlockings, centralized traffic control, and many other new developments facilitate train movements

Additional Aspects Must Be Provided on Home and Distant Interlocking Signals in Order to Direct Trains to Use New Long Crossovers and Turnouts at the Speeds for Which These Track Facilities Were Designed

UNDER a given condition of new trains operated by the best of locomotives, modern signaling is essential as a means of preventing unnecessary delays and stops, as well as permitting the trains to move at the maximum permissible speeds for which the track facilities are constructed and for which the locomotives are designed. Good track and high-speed locomotives are the result of extensive research and engineering studies, and the results are readily understood by railroad men in general, as well as by the traveling public. Likewise, signaling systems have been developed to solve those problems of train operation which have been introduced by high-speed trains, although the results accomplished by installations of modern signaling, or the delays to trains which result from obsolete signaling, are not easily discernible, even to railroad operating officers, unless detailed studies are made of the exact timing of trains over specific sections of track.

Train Time Losses

Trains operated at higher speeds require longer braking distances, and the time lost when making speed reductions or when stopping, is increased; furthermore, the time lost while accelerating to normal speed is likewise increased. Roughly, these distances and times are increased in proportion to the *square* of the difference between the previous and the present maximum speeds.

Tests have shown that if a 788-ton passenger train operated at 85 m.p.h. by a 212-ton locomotive is slowed down to 30 m.p.h. for one train length of 1,000 ft., and then accelerated to 85 m.p.h., the time lost is 6 min. 49 sec., as compared with running through the same distance at 85 m.p.h. However, if the train slowed down to only 50 m.p.h. rather than to 20 m.p.h., the time loss would be only 2 min. 35 sec. Thus a signal which directs a train to use a turnout good for 50 m.p.h. at that speed, rather than needlessly slowing the train to 20 m.p.h., saves 4 min. 14 sec. If such a train is required to make an unnecessary stop, and is then accelerated to normal speed, approximately 8 to 10 min. will be lost, depending on local conditions. If the speed of the train is reduced to 30 m.p.h. in obedience to an Approach aspect displayed unnecessarily, and runs through the remainder of a two-mile block at that speed before again accelerating to normal speed, the total time lost will be 10 to 12 min., depending on local conditions.

In former practice, many roads purposely scheduled their trains at lower speeds on sections approaching terminals to enable them to make up time which may have been lost enroute. Now-a-days, the schedules are so "tight" throughout the entire routes that a few minutes lost here and there cannot be regained without serious effort. If lost time is to be made up by increasing the speed above 85 m.p.h., a train would have to run at 90 m.p.h. for 178 miles, requiring 1 hr. 58 min., to make up 7 min. lost time.

Signals for Safety

Safety is essential, and especially so with reference to the operation of the new highly-advertised streamlined trains. A typical example may exist on a section of 100 miles or more of single track which is now to be used as a connecting link, in combination with sections of other roads, to form a through route for new high-speed stream-

Require Modern Signaling

lined trains on fast schedules. Heretofore, this section may have been used primarily for freight trains, and such passenger trains as were operated moved on comparatively slow schedules so that lack of maximum safety, as well as delays and stops occasioned by time-table and train-order operation, could be tolerated. Preparatory to the introduction of the high-speed schedules, the track must, of course, be rebuilt and maintained to new and better standards, and quite logically automatic block signaling should be installed to provide protection against misinterpretation of time-tables or train orders, broken rails, main line switches not positioned properly, or cars on turnouts fouling the main line. Also, in order to eliminate train stops, interlockings should be installed at railroad crossings where such facilities were not previously in service.

Delays a Factor in Existing Signaling

In-so-far as the introduction of new high-speed trains is concerned, safety is provided on those lines on which adequate signaling and interlockings have been in service for years. However, many of these systems inherently result in certain unnecessary train stops and delays. Any railroad can determine how far it is justified in making changes in and replacements of signaling facilities to minimize these stops and delays when introducing high-speed train schedules. The gleaming new passenger cars and streamlined locomotives have merits understood by even the small boys who watch these new trains speed by, but the new gadgets housed in those new sheet-metal cases along the right of way at the signal locations are a mystery to the public as well as to many railroad men.

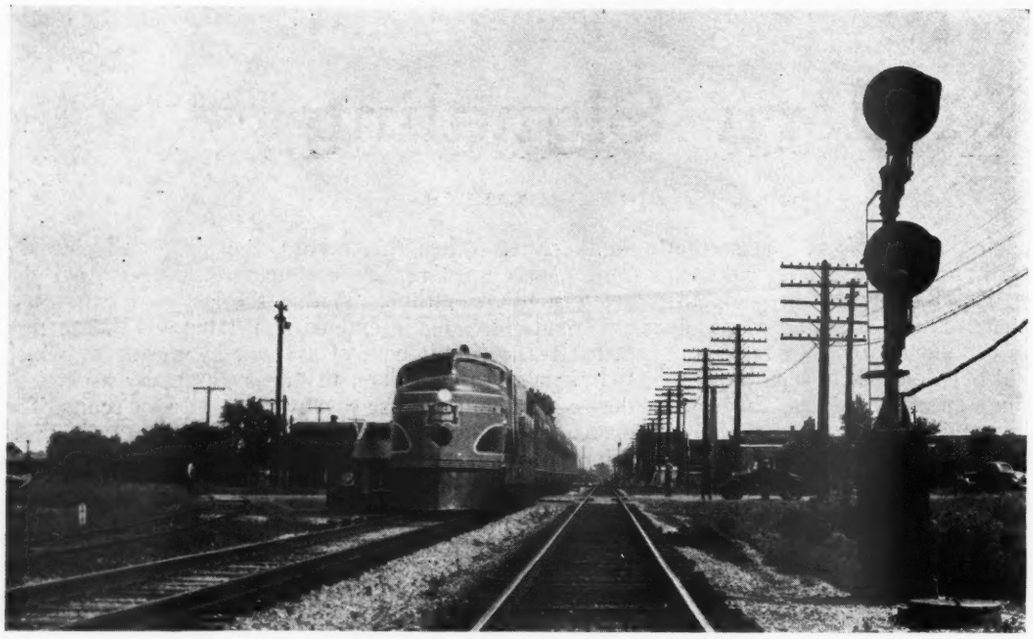
The line wires on pole lines, which have been used until quite recently on all signaling installations, are subject to breakage by winds, sleet storms and trees falling on the line. When this occurs, the signals display the Stop aspect until repairs are made, and trains are delayed in the meantime. Within the last two years, several roads have made extensive installations of the new coded track circuit control system, by means of which the signals are controlled to display as many aspects as desired, without the use of any line control circuits. The system is applicable for either single-direction train operation on one track of a multiple-track line, or for either-direction operation on single track, using the absolute permissive block system.

In previous practice, as many as 10 to 12 wires to each relay were individually attached to separate binding posts, each having two nuts. The replacement of a defective relay, therefore, required considerable time as well as concentration of thought in order to be sure that all the wires were attached to the proper terminals. On busy territories, especially in interlockings, the time required to replace a relay would result in serious train delays. Modern relays are now equipped with plugs which fit into receptacles on the instrument racks, so that a maintainer can pull out a defective relay and insert a new one just as easily as one replaces a tube in his radio set.

In days gone by, many of the morning reports listed train delays due to signals at Stop on account of broken bond wires on rail joints, and these delays were accepted as inevitable. In recent years this problem has been the subject of research, and bonds have been developed which are not only streamlined, like the new trains, but will also withstand long service without failure. Incidentally, better track and tighter rail joints have been a decided aid in reducing the number of bond failures.

Insulated wires and cables installed in inadequate wooden trunking were for many years the source of numerous signal failures and resultant train delays. Developments in this field have produced insulated wires

Shorter Blocks and Automatic Block Signals Which Display Four Aspects Are an Advantage, Especially in the Vicinity of Interlocking Plants



Modern Interlockings Can Be Manipulated Rapidly, Thus Minimizing Delays to Trains

and cables with outer protective coverings which not only can be buried directly in the ground, but do actually render satisfactory service over long periods. A new type of wire insulation will not support combustion, and, therefore, when used on wires in interlocking towers, the fire hazard is minimized. Thus, materials and equipment are now available by means of which signaling and interlockings can be installed and so maintained that the performance in terms of failures and train delays can be reduced to the vanishing point. Nothing short of this ideal is compatible with the expenditures involved in purchasing new trains and the efforts exerted in getting them over the road on time.

Modern Interlocking Save Train Time

Interlocking can now be accomplished by interconnections of electrical circuits, thus dispensing with the older forms of interlocking machines with mechanical locking between levers. On this basis, the so-called all-relay systems of interlocking control were developed, permitting the use of non-interlocked miniature levers or the button-type entrance-exit or route-control interlocking machines which permit the controls for a large interlocking to be concentrated on a desk panel. As a result, even an extensive interlocking can be manipulated rapidly, thus saving 10 sec. here and 30 sec. there, which add up to minutes in the operation of fast trains on tight schedules.

The old-time interlockings were each controlled locally, and the switches and signals were operated by pipe connections or power apparatus. By utilizing interconnected circuits to replace mechanical locking in the control machine, and by placing the circuit locking at the field locations, power switches and signals can be controlled from remote points over line wires. By developing code control systems, two line wires can now be used to control power switches at all the passing tracks or junctions on territories of 100 miles or more. One man, by operating levers on a desk-type panel, can control all the power switches as well as the signals at those locations.

With this arrangement, known as centralized traffic control, trains can enter and leave passing tracks and junctions without stopping to throw hand-operated switches, and all train movements are authorized by signal indications without the use of time-tables and train orders.

High Speed Diverging Moves

As explained previously, high-speed trains lose more time in proportion when speed reductions are necessary. At an interlocking home signal, the Stop aspect, Rule 292, means that an approaching train must stop, and the Clear aspect, Rule 281, means that the through route, on straight track at maximum authorized speed, is lined up. In interlockings where the turnouts and crossovers are good for not more than 15 to 20 m.p.h., any diverging move can be governed by a Restricting aspect, Rule 290. To reduce the time lost while running trains at reduced speed when making diverging moves, many roads have installed longer turnouts and crossovers with No. 20 frogs, which are good for 30 to 35 m.p.h. To direct trains to use these track facilities at the speeds for which they are designed, an additional aspect, Medium Clear, Rule 283, must be provided on the home signal. By using curved switch points and elevation, turnouts using No. 20 frogs can be constructed so that diverging movements can be made at 45 to 50 m.p.h. Furthermore, at ends of double track, equilateral turnouts using No. 20 frogs are good for 65 to 70 m.p.h. If the maximum authorized speed is in excess of 70 m.p.h., another aspect, Limited Clear, Rule 281C, must be provided on the home signals.

With a distant interlocking signal which displays only three aspects, the red aspect means that the immediate block is occupied, and the Clear aspect means that the home signal displays a Clear aspect for a through route on straight track. The approach aspect, Rule 285, can be used properly and efficiently to mean only one thing, i.e., that the home signal is displaying the Stop aspect, and, therefore, an engineman has no choice other than taking action at the Approach aspect to stop his train at the home signal. If, after arriving in view of the home signal, he sees that an aspect is displayed for a diverging route, he can then release the brakes and be governed accordingly. In the meantime, however, considerable time has been lost unnecessarily. For this reason, if enginemen are to bring their trains up to home signals and through turnouts good for medium or limited speed, this information must be given by additional

aspects on the distant signals. Furthermore, if the arrangement is to be most efficient, a fourth aspect is required on the signal in approach to the distant signal. Thus the distant signal aspects progress out into automatic block territory, and the two have to be standardized.

When trains are making diverging moves in interlockings, more time is consumed than for a through move on straight track. As a result other trains which may be following or those approaching on other approaches at normal speed, close up. In order to prevent unnecessary speed reductions and probably stops for these trains, short blocks and four-aspect signaling are highly desirable. In territories where interlockings are spaced 10 to 15 miles apart at various points, the use of four-aspect automatic block signals throughout permits a uniform flow of traffic on a time interval basis, although the spacing from the rear of one train to the head end of a following train may increase and decrease as the leading train passes through interlockings or other points where speeds are necessarily reduced.

Cab Signaling

The major benefit of multiple-aspect signaling is that in case circumstances ahead become more favorable, the engineman of a following train has opportunity at more frequent intervals to receive more favorable aspects, thus eliminating unnecessary train stops and delays, and thereby permitting all trains to keep moving at the highest speeds consistent with safety. This advantage of receiving more favorable aspects sooner is a characteristic feature of automatic cab signaling, and it may be contended that, for extended sections of territory where high maximum speeds prevail, cab signaling, with long automatic blocks and three-aspect, two-block signaling controls, will provide adequate track capacity, as well as improved safety and accomplish simplicity of aspects.

The use of cab signaling includes the further advantage that during foggy or stormy weather trains may be operated on schedule, whereas, with wayside signals only, they may be required to reduce speed in order to enable enginemen to see the signal aspects. Cab signaling with or without wayside signals and with equipment for the automatic application of the brakes has been in service for years on various railroads, but the first installation of cab signaling without wayside signals and without equipment for applying the brakes automatically was placed in service this year on 50 miles of a double-track line.

Train Delays Due to Automatic Block

Trains operated at higher speeds require longer distances in which to be stopped. Automatic block signals of the three-aspect type must be spaced at least train-stopping distance so that if an engineman encounters an Approach aspect at one signal he can stop his train before arriving at the next signal which is displaying the Stop or the Stop-and-Proceed aspect. If the signals are relocated to provide adequate stopping distances, the blocks may be too long and thus reduce track capacity and introduce delays.

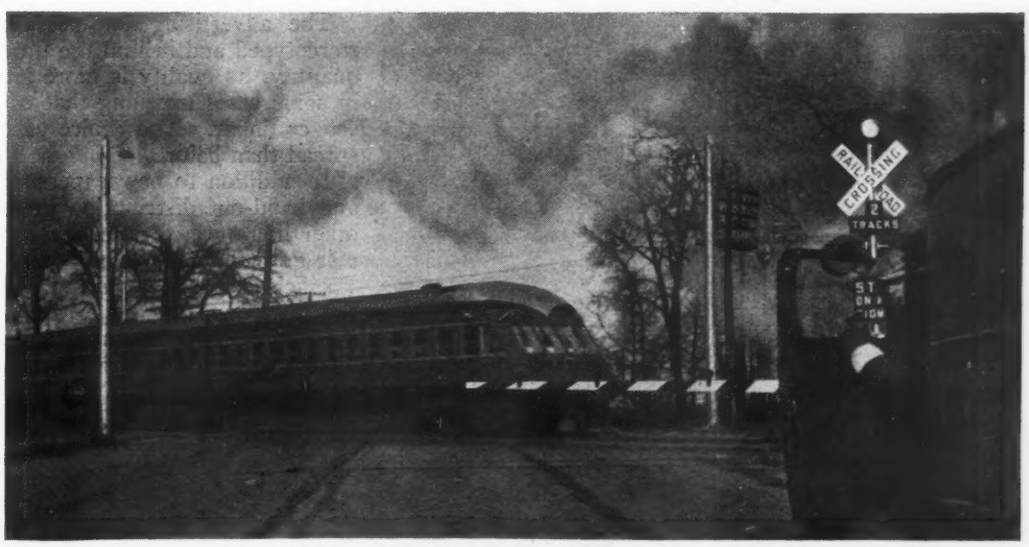
If conditions are such that the blocks cannot be lengthened, other means must be employed. The controls can be changed so that the Approach aspect is displayed on two successive signals in approach to one that is displaying the Stop aspect. This practice, however, may mean that certain trains will have to operate at half authorized speed, not exceeding 30 m.p.h. for extended distances. Quite evidently such operation would be highly inefficient and would defeat the best efforts to get high-speed trains over the road on time. The remedy for such situations is the addition of a fourth aspect on some of the signals.

This problem of necessary short blocks, new high-speed trains and longer braking distances, together with decisions of the Interstate Commerce Commission concerning interpretations of certain regulations, has created numerous complicated problems which affect much of the automatic signaling on single-track lines. A discussion of these matters is beyond the scope of this article. In brief, however, ways and means have been and are being devised, which insure not only the safety but also the efficiency of train operation.

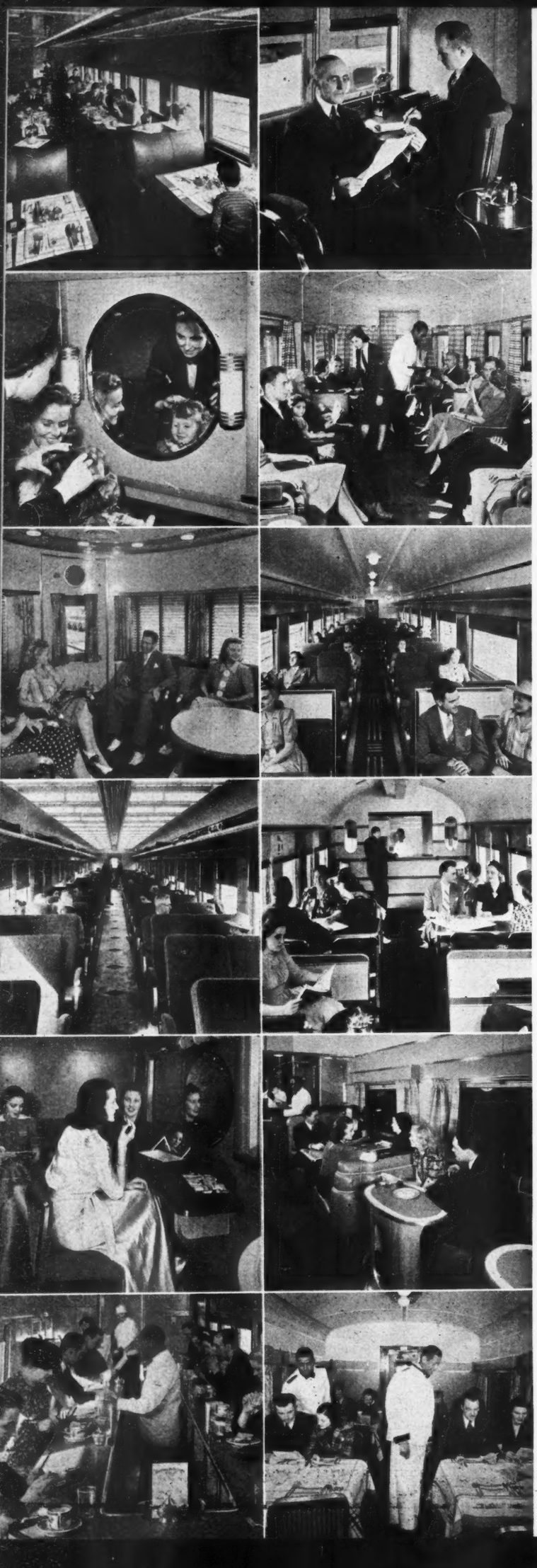
Better Highway Crossing Protection

Combined with the recklessness and constantly increasing speed at which highway vehicles are operated, the introduction of high-speed trains contributes to the hazard at highway crossings, especially on multiple-track lines. The railroads have gone beyond the limits of reason to provide crossing signals at practically all crossings with important highways, and the Federal

(*Continued on page 761*)



Short-Arm Gates in Addition to Flashing-Light Signals Prevent "Second-Train" Accidents at Multiple-Track Crossings



The Passenger M

Fine trains alone do not
of getting the public

SINCE 1934, many railways have put on streamlined trains, schedules have been shortened to a degree undreamed of only a few years ago, comfort and convenience have been advanced to a new high—so what? These new services *must* be sold; they must not be permitted simply to wither on the vine through lack of effective promotion.

The old monopolistic attitude of installing a service and saying to the public, in effect: "There it is—take it or leave it," never was good business and today, when the airways and the bus lines are conducting intelligent and continuing campaigns, such an attitude is positively fatal. Fortunately, it is fast disappearing from the railroad scene; the railways are learning to sell themselves to the public by advertising and publicity campaigns—many of them are doing a grand job of it, but there are still too many snap-judgment negatives noted at joint meetings, without adequate consideration of the proposition advanced by some individual, progressive road. The huge, heathen, stone idol, Precedent, to which railway passenger men bowed in worship for so many years, has been smashed to smithereens by the revolutionary developments in passenger transportation since 1934, but its malignant spirit is not quite dead and has been known to stand in the way of progressiveness occasionally, even yet.

What Has Been Done

The railways and the companies which aid them in catering to the comfort and convenience of the rail passenger have done an astounding variety of things to bring traffic back to the rails. Almost all of the lines have accelerated their advertising campaigns, in which effort they have been joined whole-heartedly by the Pullman Company, whose current effective advertising campaign matches that of the railways, stride for stride. Car builders and other railway supply companies must be given credit also for their efforts in advertising the advantages of rail travel to the public.

The advertising for passanger traffic is no longer stereotyped and behind the times. While still lacking in quantity, its quality is more and more matching up and in some cases excelling that of competitors for the passenger dollar. The choice of media is also more widespread than before.

In addition to newspapers, magazines and direct mail and hand-out distribution of descriptive pamphlets and other literature, the last few years have seen a remarkable development in outdoor advertising. The Southern Pacific's slogan: "Next Time Try the Train" adorns the highways of the territory served by that railway. A successful campaign in a limited area has been conducted by the Missouri Pacific in the Lower Rio Grande

Comforts and Conveniences
Ago Are Now Routine on

Must Be Sold

solve the problem
back to the rails

Valley. In this populous center, the bill boards announce the fare from each individual town to Houston, St. Louis and other centers.

Electric signs have been widely used for the first time in the last few years. Chicago's Michigan boulevard is adorned by several attractive moving electric signs advertising the streamliners, and the largest electric sign west of the Mississippi river advertises railway passenger service.

Dressing Up the Show Window

The show windows of the railways, so far as passenger traffic is concerned, are their ticket offices. The rebuilding of stations is covered elsewhere in this issue, and the modernization of uptown ticket offices has also shown a remarkable progress. With declining passenger revenues and the general deep pessimism of not so very many years ago, such ticket offices were depressing places, with unsightly racks scattered about and equipped with ancient counters. The prospective passenger of those days could hardly help looking about him, expecting to find brass spitoons and cracker-barrels since the resemblance to a country store was striking.

One of the first of the modernized ticket offices was that of the C. & O. at Cincinnati, and this has been followed by a ticket office modernization campaign that is without parallel in railway history. The modern uptown ticket office, where the most important railway-customer contact takes place, bears little resemblance to its down-at-the-heels predecessor and the effect is good, not only upon the passenger but on the ticket-sellers, whose morale was certainly in need of bolstering. The accompanying photographs tell the story more graphically than words could do.

Travel on Credit

One of the outstanding developments in passenger service during the year has been the introduction of an installment plan for selling rail travel. Under the plan, which became effective on May 1, the user of rail service can travel now and pay later. He merely goes to the ticket office of a railroad and makes application for credit in the amount of the cost of the proposed trip or tour and if a routine credit inquiry indicates an ability to meet monthly payments, he is notified that his ticket is ready for him. Use of the plan requires no collateral—only the signature of the individual. The cost of the proposed trip, however, must total $50 or more to be eligible for purchase on credit. There is a nominal service charge for the credit accommodation.

A total of 66 railroads in the United States cooperate in the plan, and the service is available at 2,300 cities.

Undreamed of Only a Few Years the Country's Railways

These railroads have made arrangements with the Travelers Credit Corporation, St. Joseph, Mo., whereby the railways sell the transportation and the corporation advances the money to them upon acceptance of the prospective users' note.

During the four months from June 1 to September 31, some 7,000 persons purchased transportation on the installment plan for a total of more than $700,000. A study of 5,000 applications shows that the average expenditure was $100, the smallest being $50 and the largest $870. Of the 5,000 applications, 9 per cent were by federal, municipal and state employees who spent an average of $93.24; 21 per cent by bookkeepers, stenographers and clerical employees, with an average of $93.53; 3 per cent by department store employees, with an average of $94.96; 8 per cent by school teachers, with an average of $139.24; 6 per cent by salesmen, with an average of $93.56; 3 per cent by telephone company employees, with an average of $122; 9 per cent by executives, with an average of $119.94; and 2 per cent by reporters, writers, publishers, with an average of $180.10; 3 per cent by doctors and nurses, with an average of $115.57; and 36 per cent by persons of miscellaneous occupations, with an average of $106.56.

Although the plan has been in effect for only a short period, its potentiality has been reflected in its popularity and the opportunities already discovered. One enterprising railroad passenger salesman in Philadelphia, Pa., used the plan to induce 10 persons to organize an all-expense tour to a laundryman's convention at New Orleans, La. Other salesmen have used the plan to encourage members of Rotary and Lions clubs and junior chambers of commerce to travel. One of the most interesting applications was for a loan to buy a rail ticket for a corpse. In this case the son of a colored woman was able to fulfill his mother's last request to be buried in the north.

Rail-Auto Plan

Another innovation to increase railroad patronage is the rail-auto service established by the railroads on May 1. Like the installment plan for purchasing rail travel, this device is an added convenience to stimulate patronage. It is available at 163 cities in the United States.

At 125 cities in 30 western states, eleven railroads provide the service through an independent organization, Railway Extension, Inc., Chicago, which owns and operates automobiles at certain points and which cooperates with drive-yourself companies in providing the service at other points. In practice the railroad ticket agent accepts the automobile reservation and forwards it to Railway Extension, Inc. It or one of the authorized drive-yourself companies delivers the automobile to the passenger at his destination station upon the presentation of his identification card or upon a deposit of $20.

Rental, which includes gasoline, oil and personal property as well as liability insurance, is standard and is paid upon the return of the automobile. The rate is 8 cents a mile for short distances and 6½ cents a mile for greater mileages of 1,000 miles or more.

In the Trunk Line and Central Passenger Association territories, the service is operated in conjunction with members of the American Driveurself Association located in 38 cities. The rate in the east is based upon an hour-and-mile schedule. The rate is $3 for a full day of 24 hours for the car plus 5 cents per mile except in New York, where the rate is $4 per day plus 6 cents per mile. In certain cities, lower rates are in effect. The

The Modern Uptown Ticket Office Is an Architectural Masterpiece

rate includes the cost of gasoline and oil. Additional points in New England are covered by the auto-rental plan established by the New York, New Haven & Hartford in August, 1938.

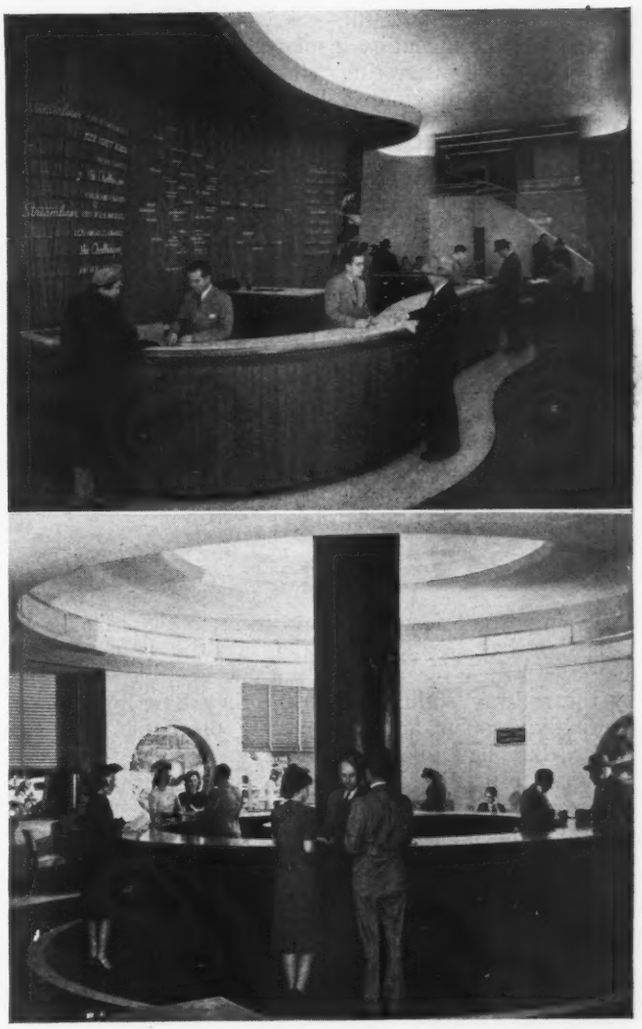
Although the number of rail patrons using drive-yourself automobiles is not made public, there is evidence that the service has created rail travel. In the west the number of customers of Railway Extension, Inc., has increased substantially each month since May. In June, the number of customers increased 58 per cent over May; in July, 47 per cent over June; in August 20 per cent over July; and in September, 8 per cent over August. The company has issued more than 30,000 identification cards in the six months in which it has been in business, not including those issued by its agents or co-operating companies. The number of inquiries received by the company continues at a high rate.

An analysis of the business of Railway Extension, Inc., reveals some interesting characteristics of travelers. Contracts picked at random show a wide range of occupations with business accounting for 85 per cent of usage and pleasure 15 per cent. Among the occupations shown on these contracts were a federal inspector, a cafe owner, a horseman, an insurance salesman, an editor, a railroad president, a railroad ticket agent, a dentist, a bank president, a farmer, a casket manufacturer, a physician, a red cap, a lawyer, a mechanic, a student, a bus driver, a naval officer, a war department inspector, a housewife, a sales manager, a sheriff, a scale checker, a superintendent of schools and a printer. During the six months from May to November the customers averaged 153 miles each. In metropolitan areas the average was 72 miles per customer and in rural districts 306 miles. The average rental per trip was about $15, the smallest amount being 80 cents and the largest $455. The latter amount was spent by a photographer who in previous years had used his own automobile on business tours of the west. In September, 12 per cent of the contracts were in excess in $100.

Letters received from patrons indicate that the primary appeal is the comfort of railroad travel and the convenience of an automobile at destination. An advertising representative said, "Through using your service on this trip, I consider I saved myself 4,000 miles of tiresome driving from Springfield to Denver and return —12 or 13 days' time and hotel expense. I also figure that I saved my own car more than 10,000 miles of use and wear, and spared myself two full weeks of unnecessary personal driving fatigue on the road. Modern train service is fast and comfortable and low priced, and free from delays and hazards of crowded trunkline highways, particularly between Chicago and the Atlantic Coast. Your service offers a comfortable and feasible method of sight-seeing travel, with freedom of movement, and at a moderate net expense."

Promotional Activities

Even after the inauguration of over one hundred of the new streamlined trains, such trains still give excellent opportunities for promotional activities. The ceremonies attending the installation of the Denver-Dallas Zephyrs on the C. & S.-Ft. W. & D. C., the Eagles on the M. P. and the Southern Belles on the K. C. S.-L. & A., were two examples of the possibilities still existing for attracting public attention to the railways. These inaugurations were extremely successful from the standpoint of public interest and attendant publicity. Blase New Yorkers flocked to the Pennsylvania station for the inaugural ceremonies launching the new New York-Florida trains, and the ceremonies at Miami and other Florida points attracted huge crowds and much favorable newspaper comment. One of the Burlington's new Zephyrs, the Silver Streak, made exhibition runs totalling 7,216 miles before being placed in revenue service last year, with average earnings of $1.98 per mile. A total of 9,356 passengers was handled, of whom 1,604 were children.



Selling the Passenger Begins in the Ticket Office

The ceremonies attending the birthday parties of several railways, notably the Burlington at Aurora, Ill., and the Santa Fe at Atchison, Kan., were also successful promotions, while the U. P. repeated the success of the Golden Spike Days of last year with another celebration, which included the widely-publicized running of the special "Gracie Allen for President" train from Los Angeles to Omaha.

Miscellaneous activities along promotional and unique service lines include the installation of loud speakers at the Pennsylvania station at Harrisburg so that passengers may listen to radio programs while waiting for trains; a "vestpocket" museum of documents and photographs illustrating 100 years of railroading, established in the Grand Central station in New York; fashion shows held aboard Seaboard trains en route to Florida; unique advertising in the form of comic strips by the Wabash; the appearance of a team of courier-nurses of the Santa Fe in competition with a team of New Haven dining car stewards on a quiz program in a national radio hook-up; and the provision of study tables for commuting students in the North station at Boston. These

are only samples indicating the wide variety of subjects treated and the ingenuity displayed in promoting railway travel. Several interesting "shorts" dealing with railway subjects were distributed by the newsreel and other motion picture companies during the year, and a compilation made by the A. A. R. in June indicated that there are 204 motion pictures dealing with railroading or advertising scenic beauties along railway lines that are available for distribution.

The all-expense tour business has also been intelligently promoted during the year. These tours can be made at an amazingly cheap price and have been so worked out as to give the passenger the most for his money. Most of them are linked with scenic bus tours and these have increased to a large extent, so that the railway passenger has the opportunity of seeing as much of the out-of-the-way beauties of this country as the traveler driving his own automobile. A complete description of the extent of this business was published in the *Railway Age* of April 27, 1940.

A Station Cocktail Lounge—One of the Supplementary Conveniences

Hobby Trains

An important factor in the "back to the rails" sales campaign has been the running of the hobby trains. These had their inception only a few years ago, but, led by the railway enthusiasts' trips, they have proved exceedingly popular and not merely profitable in themselves, but have been valuable in promotion. Their patrons are mostly young people, raised in the tradition of the automobile and the airplane rather than the railway. Getting them on trains is potentially valuable as they are the travelers of tomorrow. These hobby trains have included trips for camera fans, trips that involved taking bicyclists or fold-boat enthusiasts to certain spots by train and having the train meet them 20 or 30 miles away, ski trains and husking bee trains. Most of the railways have run such excursions, the largest of which was probably a transcontinental jaunt of some 7,000 miles for the railway enthusiasts. The results have been uniformly good. On the New Haven, for example, in 1939, 14,000 hobbyists patronized such trains, which were operated a total of 28,000 miles.

Approximately 57 per cent of the hotel patrons are also railway patrons, a fact which shows that the two industries can accomplish much by mutual helpful effort. Responsible hotel men have recently approached the railways with ideas for co-operative effort and particularly with the idea of returning the hotel to its former status as a center for travel information instead of permitting the filling station on the corner to monopolize the business to the detriment of the railways and hotels alike.

A plan is now being formulated for the establishment of travel bureaus in over 450 hotels throughout the country and also for the appointment of a travel committee by the railways to co-operate with the active existing travel committee of the American Hotel Association. There is still a big job to be done in joint development of railway passenger traffic and hotel occupancy. A start has been made and it is a move in the right direction.

Supplementary Services

Merchandising of the supplementary services of rail travel has also undergone a complete change. The exhibits of the new Pullman services and comforts have been widespread in stations and at fairs. The range of such improvements is wide. For example, the Parmelee Company, handling the transfer of passengers and baggage between trains in Chicago has just finished putting its 32 train agents through a course in correct enuncia-

Striking Advertising Displays Aid in Selling Rail Service

The Station Dining Room Has Undergone an Amazing Change

tion under radio teachers. At the same time the automotive equipment of this company has been completely remodernized. Restaurants and shops in railway stations have been modernized to a very great extent. The new Los Angeles union station, for example, contains a shopping and dining center of which any city might be proud. Vast improvements have been made by such caterers to railway patrons as Fred Harvey and Savarin. The Westport room of the former in the Kansas City union station and the Crossroads dining room in the Dearborn station in Chicago are as fine restaurants as are to be found in those cities and have received national publicity in restaurant and architectural trade journals. The restaurant in the union station at Omaha is another outstanding example. These new station restaurants and cocktail lounges feature indirect lighting, the latest type of acoustical treatment and air-conditioning, and are decorated by the country's outstanding industrial designers.

As the competing agencies of transportation have proved, the possibilities of travel promotion in this country are almost endless. Americans are afflicted with an incurable case of wanderlust and no country in the world has so much to show the traveler in such wide variety. Events of the past few years have developed that the railway industry contains as keen and fertile brains as any other industry and such intelligence has improved rail passenger travel in this country more in the last six years than perhaps in any other period in history. But rail travel, however much it may be improved, still remains to be sold to the public. Service refinements are essential and should be continued without slackening of the remarkable pace already set. There remains a prime necessity—that of keen, intelligent and aggressive salesmanship. Passenger traffic officers have had many discouragements during the last ten or fifteen years, but they have given little or no indication that they are licked. Importantly, too, they are deserving of wholehearted support and co-operation from the management. It is a short-sighed executive policy indeed that causes millions to be spent in new trains and service improvements—and then slices advertising and promotional appropriations to the bone.

Faster Trains Require Modern Signaling

(*Continued from page 755*)

government has aided in this activity during recent years.

When trains of especially high speeds are introduced, the track circuit controls can be lengthened to provide that the signals give the warning for the standard minimum of 20 sec. Those drivers who interpret the signal aspects to mean that they should increase speed and get over the crossing ahead of the train sometimes miscalculate and get hit, especially when a high-speed train is involved. Quite evidently those drivers, who will not take time to observe and obey the signals, can blame no one other than themselves for accidents resulting from their own carelessness. Nevertheless, accidents continue to occur, especially on multiple-track crossings when automobiles or trucks, after waiting for the rear of one train to pass, start moving immediately without noting whether the signals are continuing to operate as a warning that a second train is approaching in the opposite direction on a different track.

The limit to which the railroads are justified in installing, operating and maintaining additional equipment to save the lives of those who will not observe and obey signals is questionable. The United States Public Road

Hobby Trains Are an Excellent Medium for Promoting Rail Travel

Administration, which has charge of the Federal funds allocated for the installation of highway crossing protection as a means of improving highway safety, believes that the additional expense, required to include short-arm gates as a part of flashing-light signal projects, is justified at crossings on multiple-track lines as well as at crossings of single-track lines on which high-speed trains are operated.

In certain towns where ordinances have required low train speeds, the railroads have co-operated with state and city authorities in the adoption of programs to close certain crossings and equip the remainder with modern flashing-light signals and gates. With this improved safety, the speed restrictions have been removed and several minutes are saved for each high-speed train.

Modern Passenger Cars Built Around the Passenger

(*Continued from page 744*)

the patron is freed from the constant annoyance of cold streaks. Where the system operates by cycling, however, there are periodical changes in humidity of which he still is conscious. The condition of the air as to temperature and humidity is now controlled without so much of the usually unskilled intervention of members of the crew as was formerly necessary. Complete automatic control of heating and cooling is looked upon as a desirable objective.

The recent trends in the lighting of passenger cars is in the direction of variety. With both the fluorescent and incandescent lamps many novel effects are being achieved both by the use of translucent plastics and diffusing lenses. Light intensity is gradually being brought up more nearly to ideal values at the reading plane in coaches, dining cars, and club cars.

Choice of Pullman Facilities Multiplies

Progress in the development of comforts, conveniences and taste appeal for the traveler by rail has by no means been confined to railway-owned passenger-carrying cars. Nearly 10 years ago the Pullman Company began building experimental cars with novel types of room and berth facilities. The first duplex type bedrooms arranged with transverse sofas were installed in the sleeping cars Voyager and Wanderer which went into service near the beginning of 1932. Many of the lightweight sleeping cars with streamline exteriors which have been built since 1937 now offer the traveler this type of facility. Compared with the older standard arrangements, the master bedrooms, drawing rooms and compartments now built in these new cars greatly enhance the possibilities for enjoyment of daylight travel as well as comfort and convenience at night.

At the other end of the scale are the roomette, first exhibited at Atlantic City in 1937 and the triple-deck coach sleeper which has been in experimental service since June. With single bedrooms and double bedrooms in the middle of the scale, and including the upper and lower berths of the time-honored open section, no less than ten distinct kinds of overnight accommodations are available in Pullman sleeping cars today and several other arrangements can be effected by suite combinations.

Rail Cars a la Mode

When the railroads began to buy gasoline rail-motor cars about 20 years ago they were regarded as a means of stopping or reducing loss on a service for which the market was declining, but which could not be immediately abandoned. The early single-unit car, in fact little more than a rail bus, soon evolved into a vehicle with sufficient motive power to handle several trailers. The next significant development in this field was the lightweight, high-speed articulated train, with Diesel-electric power plant, which soon grew out of the rail-car class and became a train hauled by a full-fledged Diesel-electric locomotive.

The single rail car, fitted with all the modern comforts of a de luxe train, and styled like it too, is again coming into the railroad picture, this time not as a stop-loss expedient, but as a means of getting new business or rendering a better and more attractive service where a multiple-car train is not needed. Thus is added another to the growing kit of specialized transportation tools now available to the steam railway.

More Roads Buy Diesels

During the year and a month which has elapsed since the publication of the 1939 Passenger Progress Number something over 100 locomotives for passenger service have been delivered to the railroads of the United States. This number is about equally divided between steam and Diesel-electric. The steam locomotives, however, have been in a small number of relatively large orders, while most of the Diesel-electric locomotives have been delivered in lots of one and two locomotives, with a few larger orders. It is evident, therefore, that the interest in the Diesel-electric locomotive for passenger-train service, particularly for the movement of de luxe trains, has been rapidly spreading during the past year.

High Speeds Demand Good Track

(*Continued from page 751*)

face and gage are magnified as speeds increase. It has also become apparent that if these irregularities are not corrected, those that might merely cause discomfort at ordinary speeds become a real hazard at today's maximum speeds.

Correct Defects Quickly

Experience has also impressed upon maintenance officers and men alike the necessity for immediate correction of minor defects as soon as they are discovered, many of which formerly would have been disregarded until a more convenient time, for they have learned that such defects often develop quickly under high-speed operation and, if neglected, may become real hazards. While these are not structural defects when they start, but are merely irregularities of line, gage or surface, they may affect the integrity of the track structure if they are allowed to continue.

These facts indicate the necessity for not only building strength into the track sufficient to withstand the destructive effect of the greatly intensified forces which high speeds impose, but also the necessity for track of greater stiffness to prevent the initial occurrence of minor defects and to slow down their progress if they do develop. The first step in providing a track of the smoothness demanded by high speed is to insure a stable roadbed. Only a dry roadbed is dependable in this respect, so that the first requirement is drainage. This invariably involves surface drainage in cuts; it may also

require similar drainage for the right of way. In many cases, subsurface drainage is of equal importance.

Coupled with this need for improved drainage, on not a few lines there is an equally pressing need for widening and strengthening embankments, particularly where applications of ballast must be made in preparation for high-speed trains. Incidental to this drainage and grading, which have sometimes approached almost complete rehabilitation of the roadbed, in many cases cuts must be widened also. In carrying out this work, there is a demand for draglines, power shovels, earth-hauling equipment, tractors equipped with bulldozers and front-end loaders, trenching machines and other grading and digging equipment. Large quantities of clay, concrete and corrugated metal pipe will be required in connection with the drainage. Regardless of the high standard to which the roadbed has been constructed or rebuilt, it will be of little value as a support for the track unless the traffic loads are distributed over it in such a way that it will remain stable. This requirement calls for clean ballast of good quality to insure adequate drainage of the track structure as well as to distribute the wheel loads.

Heavy Rail Essential

Having provided a stable foundation for the support of the track, heavy rail will do more to provide track adequate to meet the demands of high speed than any other single factor. The A. R. E. A. heavy sections will assure track having a high degree of lateral and vertical stiffness, an essential qualification for high speed. Heavy rail alone is not sufficient, however, for modern wheel loadings and train speeds demand a degree of stability of the track itself that can be obtained only by improvements in other details of track construction. For this reason, the rail must be supported by means of double-shoulder tie plates on sound ties which, for economic as well as physical reasons, must be given preservative treatment. It must also be held against longitudinal movement, and this is accomplished by means of anti-creepers or by the more recently developed rail fastenings which incorporate anti-creeping characteristics. In this connection it is pertinent to observe that in not a few cases maintenance officers are increasing the number of anti-creepers to a rail panel.

Probably no detail of the track structure gives more trouble than the joint. This makes it important that joints of proper design be selected in the first instance, and that they be maintained to a high standard. To do this the bolts must be kept tight and the joint must be maintained in proper surface. Eventually, rail-end batter will develop and the fishing surfaces of the rail and the joint bars become worn. When this occurs, the rail must be restored to its original section by welding and the wear on the fishing surfaces must be compensated for by welding, by oversized or reformed joint bars or by joint shims.

While accurate line and surface are important on tangents, they are doubly so on curves, where variations in either one or both may cause discomfort that grows into a feeling of insecurity as the speed increases, and eventually becomes apprehension, while at maximum speeds these irregularities may become a source of danger. The same smoothness of line and surface must characterize the approach to the curve to insure a comfortable transition from tangent to the body of the curve or vice versa.

On lines where high speed schedules are in effect, there is a definite trend today toward the construction of stronger track, and it is notable that on more than one road heavy rail and other incidental improvements are being installed on lines upon which justification for these improvements had not been found until high-speed service was inaugurated.

High-speed service has made necessary not only a higher standard of track construction, but far higher standards of track maintenance than had been foreseen until these shortened schedules confronted maintenance officers suddenly six years ago. It is greatly to their credit that they responded so quickly and adequately to the new demands. Even under the best of conditions, constant vigilance is required to keep the track riding smoothly. Where heavier construction has not yet been provided, and this represents many miles of lines, maintenance will continue to be difficult until the necessary strength and stiffness has been injected into the track. This is a project that is being given preference on practically every road having high-speed service.

Passenger Progress Scores Most Outstanding Year

(*Continued from page 718*)

City and Denver on its new train, the Centennial State. The coming year should see unusually interesting results from this unique experiment.

Since 1934, of course, emphasis in passenger service improvements has been placed very largely on the new streamlined trains and naturally so, as they have been outstanding as a means of attracting public interest. The improvements in general passenger service, however, have kept pace with the flying streamliners. Chief among the improvements has been air-conditioning, in which the railways were pioneers. The first attempts at air-conditioning a diner here and there were made within the last decade, and yet air-conditioning of all types of railway passenger equipment is now taken for granted, the Class I railways and the Pullman Company having 11,986 air-conditioned passenger cars in operation on July 1, 1940, an increase of 635 for the year and an increase of 271 for the sixth months from January 1, 1940.

Another outstanding development has been the widespread installation of new coaches and the modernization of existing services. Individual reclining seats and individual lighting are fast becoming standard equipment for coach travel as well as much larger washroom facilities. Dining car prices are showing a steadily downward trend, with no diminution of quality. The nurse-hostess service is being expanded rapidly to include more and more trains. The popularity and the scope of this service are amazing, considering its relative newness, but any passenger traffic officer who could sit in with the office assistant to the president of the Union Pacific, while the girls are making their daily detailed verbal reports, would get a new idea of the value of this service.

Lounge-observation, club and tavern cars are being added to many trains not heretofore having such conveniences. In general, there is a vast improvement in service, schedules, comfort and convenience, quite apart from the new streamliners. Manifestly, it is impossible to list all of these, but typical examples follow on roads in various parts of the country.

Since the "revival" insofar as passenger traffic is concerned, the New Haven has bought 200 new streamlined lightweight coaches and has rebuilt and modernized 150 more. Other purchases of new equipment have included 5 grill cars, 6 dining cars, 10 streamlined steam locomotives and 6 streamlined electric locomotives. On April

28, 1940, the entire New York-Boston service of this road was re-scheduled to give departures from both cities every hour on the hour, requiring 360,000 additional train miles. At the same time, coaches were added to the high-speed Yankee Clipper and the banner train of the fleet, The Merchants' Limited, was scheduled to make the run of 230 miles in 4 hr. 15 min.

The Wabash, in connection with the Union Pacific, inaugurated the first through tourist car service between St. Louis and San Francisco in the summer of 1940. This road also installed new "Coaches of Tomorrow" on its Banner Blue Limited between Chicago and St. Louis, equipped with individual lighting.

The Canadian National has purchased a total of 66 new streamlined cars, 50 coaches, 10 buffet-sleepers and 6 diners, as well as 41 new passenger locomotives, of which 11 are streamlined. A total of 495 other passenger cars have been modernized.

The Chesapeake & Ohio has established through reclining-seat chair car service between Washington and St. Louis, in connection with the Big Four. This road has modernized practically all of its passenger equipment and has several coaches for special parties where the seating arrangement is such that it can be set up for groups of four, six or eight persons.

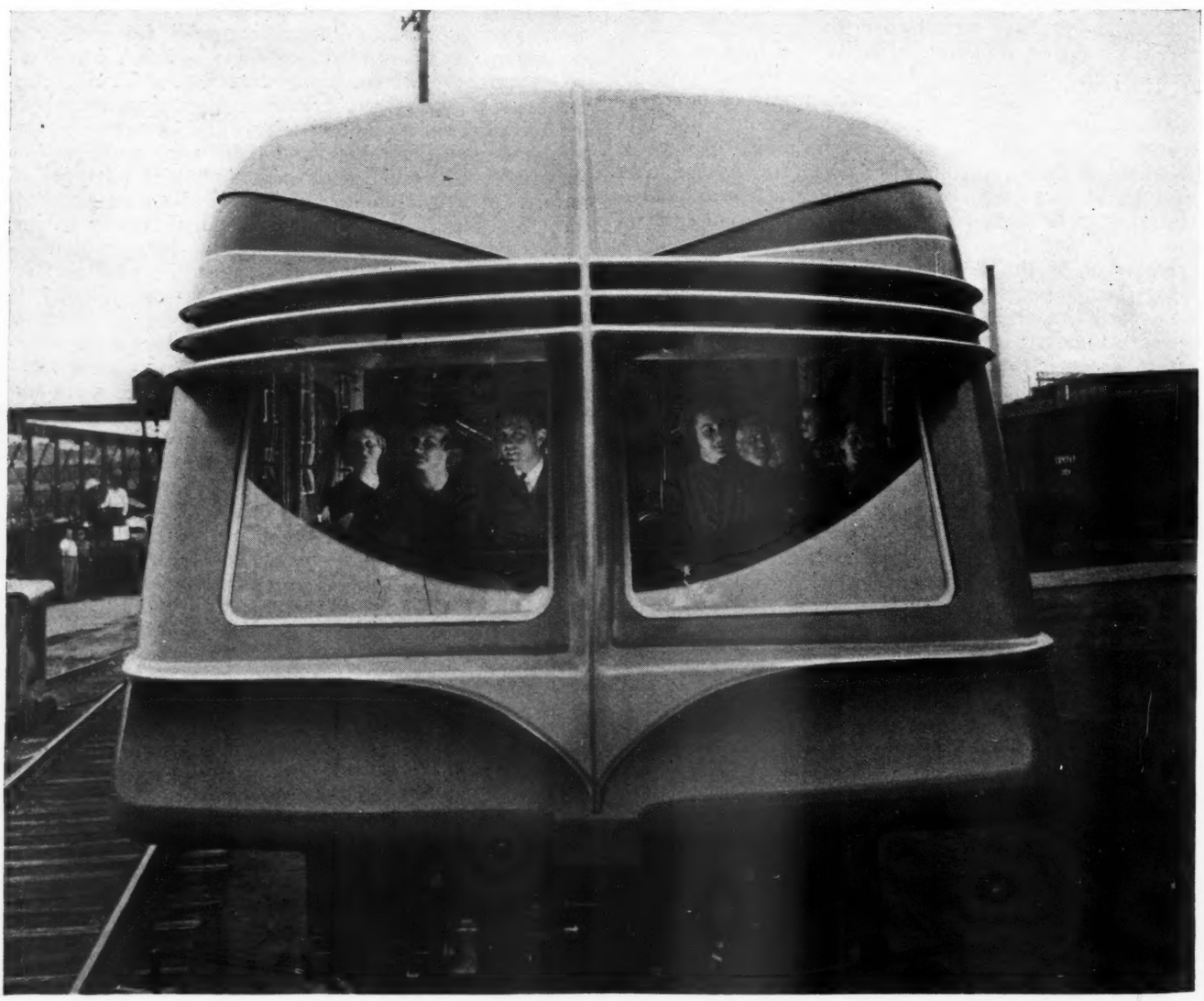
In a successful attempt to attract vacationists who would otherwise use their own cars for transportation and tourist courts for lodging, the Northern Pacific runs all-expense tours to the West in coaches where the seats are adjustable to an almost horizontal position and sheets and pillows are supplied.

The Delaware & Hudson has purchased six new lightweight, streamlined coaches, has rebuilt coaches and diners in its own shops, and has a continuing program of passenger car modernization under way.

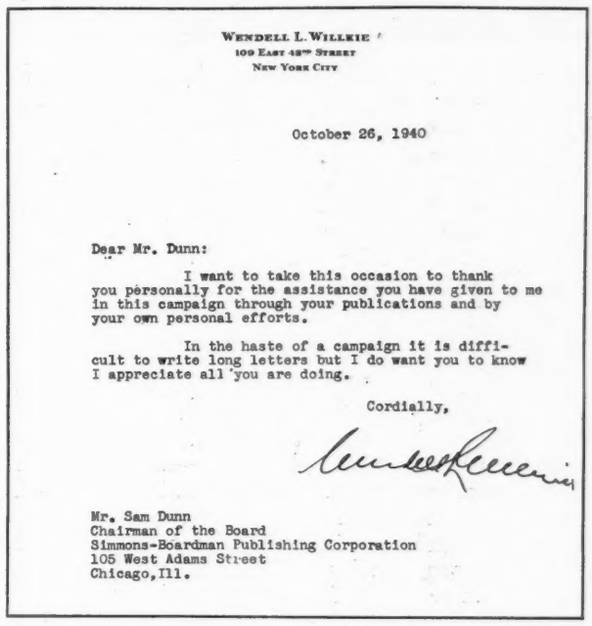
The Great Northern has made special efforts to improve its dining car service, both from the standpoint of excellent, low-cost meals and of car design and comfort. Unique crockery, featuring "shadowtone" treatment of decoration and modern anadized aluminum chairs are part of these improvements.

The Exposition Flyer of the C. B. & Q.-Denver & Rio Grande Western-Western Pacific is now 12 hours faster than the fastest train over this route five years ago. The latter two roads, to take advantage of the scenic beauty along their lines, have equipped coaches with unusually wide and high windows.

A listing of the improvements in passenger service might go on almost indefinitely. The streamliners began a march of progress that has been felt in every form of railroading. Not only have other trains been speeded and spruced up, but the improvements have spread to uptown ticket offices and to stations, as described elsewhere in this issue. When the improvements in track and signaling are also considered, it will be observed that streamliners are truly revolutionizing railroading.



How Wendell Willkie's Program Parallels Policies Advocated by Railway Age



WENDELL L. WILLKIE
109 EAST 48TH STREET
NEW YORK CITY

October 26, 1940

Dear Mr. Dunn:

I want to take this occasion to thank you personally for the assistance you have given to me in this campaign through your publications and by your own personal efforts.

In the haste of a campaign it is difficult to write long letters but I do want you to know I appreciate all you are doing.

Cordially,

Wendell Willkie

Mr. Sam Dunn
Chairman of the Board
Simmons-Boardman Publishing Corporation
105 West Adams Street
Chicago, Ill.

Mr. Willkie Said in His November 11 Speech:

Inflation and Government Spending.—"No man is wise enough to say exactly how big the national debt can become before causing serious inflation. But some sort of limit certainly exists, beyond which lies financial chaos. Such chaos would inevitably mean the loss of our social gains, the destruction of our savings, the ruin of every little property owner, and the creation of vast unemployment and hardships. It would mean, finally, the rise of dictatorship. Those have been the results of financial collapse in every country in the history of the world. The only way that we can avoid them is to remain sound and solvent. . . . All federal expenditures except those for national defense and necessary relief ought to be cut to the bone and below the bone."

National Income Must Rise.—"I do not believe we can hope to bear the debt and taxes arising out of this defense program with a national income of less than one hundred billion dollars—our present national income is only $70,000,000,000—unless we lower the standard of living of every man and woman who works. But if we can increase our national income to $100,000,000,000 we can pay for this defense program out of the increase and that increase can readily be produced if we free private enterprise—not for profiteering but for natural development."

The Campaign Must Go On.—"In your enthusiasm for our cause you founded thousands of organizations. They are your organizations, financed by you and directed by you. It is appropriate for you to continue them if you feel so inclined. . . . I want to see all of us dedicate ourselves to the principles for which we fought. My fight for those principles has just begun. I shall advocate them in the future as ardently and as confidently as I have in the past. . . . I shall be working shoulder to shoulder with you for the defense of our free way of life, for the better understanding of our economic system and for the development of that new America whose vision lies within every one of us."

Railway Age Has Said:

Inflation and Government Spending.—"The prolonged continuance of huge government spending resulting in unbalanced budgets and rapid increase of government indebtedness leads straight toward government bankruptcy and uncontrolled inflation of the currency, which, in turn, leads straight toward ruin of all classes of the people, and especially of middle class property owners. Therefore, all in public or private life having any realization of the inevitable ultimate effects of continued increase of government deficits and indebtedness will unite in an effort to curtail government expenditures not needed to provide for defense."—*Railway Age, November 9.*

National Income Must Rise.—"If the national income should be only 70 billion dollars and we should spend 5 to 10 billion dollars annually on national defense, the people would have left only 60 to 65 billion dollars annually on which to live. On the other hand, if the national income should average 100 billion dollars and we should spend 5 billion to 10 billion dollars annually on national defense, the people would have left from 90 to 95 billion dollars on which to live."—*Railway Age, July 27.*

The Campaign Must Go On.—"If in spite of the New Deal's continuance in office for four years more, the system of free private enterprise in this country is to be saved and real prosperity is finally to be restored, these things will have to be accomplished, not by a few weeks' campaign, but by years of organized activity by thousands, and even millions, of people as well as by the intelligent, constant efforts of individual business men and groups of business men to make private enterprise so work as to reduce or eliminate justification for attacks upon it."—*Railway Age, November 9.*

Beven Addresses Short Line Assn. Meeting

THE future need not be bound by regulation, for railroad managements can break the mold from which it is shaped and build a new one in the form of good and greater accomplishments, J. L. Beven, president of the Illinois Central, told members of the American Short Line Railroad Association at their annual meeting at Chicago on November 11 and 12. Specifically, he urged railroad management to exert itself to provide efficient and economical transportation and to induce employees to put their shoulders to the wheel so that both will work in harmony toward a common goal.

The meeting, over which President J. M. Hood presided, was attended by 150 representatives of short line railroads throughout the United States. Besides reports of committees and regional vice-presidents, the program included several speakers. All officers and regional vice-presidents were re-elected.

One of the highlights of the meeting was the adoption of a legislative program for the ensuing year. The Association went on record as favoring the following:

1. Private ownership and operation of the nation's railroads.

2. Equality of regulation and equality of opportunity for service of all competitive forms of transportation.

3. The discontinuance of subsidies to and the equalization of the tax burden upon all forms of interstate transportation.

4. Relief from financial burdens incident to the elimination of highway-grade crossings.

5. Fair and equitable treatment of short line railroads, whether or not under federal control, and regardless of federal control of Class I carriers.

6. Amendment of the Railway Labor Act of 1926, as amended by the Dill-Crosser act of 1934, with respect to the National Railroad Board of Adjustment, as contained in S.4375—76th Congress.

7. The abolition of the Inland Waterway Corporation as a government agency and the discontinuance of barge line operations by the federal government.

8. The imposition of tonnage taxes for commercial use of inland waterways.

9. The regulation of freight forwarders.

10. The restoration of salaries of members of the Interstate Commerce Commission to the amounts prescribed by statute. The association disapproves the action of Congress in failing to appropriate money to pay the statutory-prescribed salaries.

At the same time the Association went on record as opposing the following:

1. Any legislation which would increase the expense of operation of the railroads without compensating improvement in service available to the public or the enhancement of safety.

2. Any legislation which would impair the efficiency or independence of the Interstate Commerce Commission.

3. The establishment of special courts with jurisdiction over railroad reorganizations.

4. A Federal Workmen's Compensation Act detrimental to the interests of its member lines or their employees.

5. The appearance of an official of one government agency before another government agency, such as the Secretary of Agriculture and the Bituminous Coal Division of the Department of Interior appearing before the Interstate Commerce Commission in rate cases.

6. The exclusion of transportation agencies from the operation of the Sherman Anti-Trust Act.

7. The construction of the proposed St. Lawrence waterway.

Mr. Beven in discussing the future of the railroads said that what the industry needs is fresh sunlight and bracing air, together with a brushing away of the cobwebs of the past so that the railroads can keep pace with their competitors. At the present time, he said, the railroads must have more plant capacity than they can now use or hope to use after the emergency and when the day of true co-ordination comes they will have to discard more of it than they have discarded in the past. He warned railroads to improve on the upturn of business but at the same time to prepare for an opposite swing since a breakdown now may mark the eclipse of private ownership.

Employees, he said, represent a force that can make or break the industry and they with the management should pursue those things which will react to the good of the industry. Management should encourage and assist employees in taking every step to improve efficiency and earning power.

Mr. Beven also recommended that officers and employees talk less about railroad troubles and more about their accomplishments, less about the railroad's needs and more about what they have; and less about what they want and more about what they give. "For who," he said, "can estimate the public opinion resulting from the recital of troubles? There is a brighter day ahead and public opinion is now favorable. The future need not be bound by regulation. We can break the mold. By doing good work and by encouraging employees to put their shoulders to the wheel we can change regulation. There is room for all in this changing world."

Donald D. Conn, executive vice-president of the Transportation Association of America, warned against the inroads of "government socialism," in the relations between business and labor, and against any "emergency" which may be used as an excuse for federal ownership of railroads.

"The task of business and railroads," Mr. Conn said, "is to convince labor that it has been treated fairly, and that the relations between capital and labor should not be strained by the inroads of governmental socialism. The more that government interferes with this relationship, the quicker the working man will lose his own freedom."

He said that during the last ten years business has paid out $24,000,000,000 more than it took in, taking most of the fund from previously accumulated reserves. It was used largely to keep labor at work, he said. He cautioned railroad men to "be watchful that the international situation will not create a domestic emergency which will give any one an excuse for again promoting governmental ownership." The rising national debt, which he estimated would amount to 80 billion dollars in five years, and the government's planned program of "agricultural scarcity" have also created problems for the railroads, Mr. Conn said. The farm plan, he said, has cost farmers 12 billion dollars in lost markets in the last seven years, and has cost the railroads about 500,000 carloads of freight a year.

P. M. Gillilan of the motive power section of the transportation department of the General Electric Company, described, and illustrated with motion pictures, Diesel-electric locomotive progress since 1905 when this company used an internal combustion engine to generate electricity for motors mounted on the drive wheels of a railway car.

A. A. R. Holds an Open Meeting

First open house of Association features speeches on many subjects and panel discussion before mixed audience

OVER 800 persons from all corners of the nation gathered at New York on November 13 and 14 for the first open meeting ever held of the Association of American Railroads—maybe one of the most significant national conclaves of member railroads since formation of the A. A. R.'s spiritual ancestor—the Time Conventions—in 1872. Held at the Hotel Biltmore, the meeting attracted not only railroad officers but traffic managers and representatives of industry, agriculture, and labor generally as well—the ratio being about 60 carriers to 40 guests. Distinguished leaders in finance, government, agriculture and industrial traffic management, discussed railroad questions from their respective points of view at the open session on Wednesday morning (November 13) and at the banquet in the evening, while on Thursday morning a panel of representatives of shippers, labor and carriers sailed into the question of railroad service and its betterment. J. J. Pelley, A. A. R. president, presided at all sessions.

At the regular annual closed meeting of member road representatives, which convened on Wednesday afternoon, the railroads re-elected the present directors of the Association, considered its budget for the forthcoming year and adopted the following pledge: "In the operation of a continent-wide system of rail transportation each railroad has responsibilities to every other railroad, and all of them together have the responsibility of providing the nation's essential low-cost mass transportation. The member roads of the Association of American Railroads, assembled in annual meeting, do hereby renew their pledge to those whom they serve that individually and in co-operation with each other and with the government of the United States that they will continue to meet to the full the demands of commerce and the needs of national defense."

Not an item on the program for those attending, but an integral part of the plan to publicize the big railroad meeting was a 15-minute broadcast on stations of the Mutual network east of Chicago from 10:45 to 11 p. m. in which President Pelley and three A. A. R. board members—M. W. Clement of the Pennsylvania; E. E. Norris of the Southern and F. J. Gavin of the Great Northern—discussed in informal fashion the work of the railroads in national defense. Briefiy, the script was based on the so-called "round-table," question-answer method, Mr. Pelley, as moderator, asking the questions which the public is asking about railroad capacity, port congestion, etc., and drawing the "low-down" thereon from his panel of railroad presidents. Last thing to come over the air was a recitation by the A. A. R. president of the pledge which the member roads adopted in closed session.

John A. Stevenson, president, Penn Mutual Life Insurance Company, starting off Wednesday's session with a discussion of the railroad situation from the investors' standpoint, declared that fiduciary institutions would welcome a re-entrance of the railroads into the capital market in an intensive improvement program under a healthy credit outlook. Characterizing subsidies for motor, water and air carriers as a manifestation of a national desire for "something for nothing, or less than cost," the speaker saw great possibilities in the Transport Board to be created under the new Transportation Act.

Donald Kirkpatrick, general counsel, American Farm Bureau Federation, representing agriculture, which accounted for 26 per cent of 1939 rail freight revenues, constructively criticized railroad services and rates. Traffic diversion in recent years by farmers to trucks he blamed on the failure of the railroads to provide track facilities at principal wholesale fruit and vegetable markets in the big cities, necessitating draying from rail heads; excessive individualism in providing terminal facilities, thus narrowing the markets of on-line shippers; excessively high rates; and red tape and inconsistencies in granting privileges. The most important factor, however, he believed to be the rigidity of the rate structure and habit of the roads of raising rates in time of depression and low farm prices. He also expressed doubt of car supply adequacy and said agriculture seeks certainty on the point, since a "serious car shortage hits farmers first."

C. E. Smith, vice-president, New York, New Haven & Hartford, presented an address on "Railroads and Research" in which he broadened the usual concept of the subjects of research to include rate-making, public relations, competition and government subsidies, as well as the engineering aspects of the industry, and described the accomplishments of the railroads in these spheres. He placed considerable emphasis on the fact that railroad research cannot be carried on by one unit but is the common object of brains in the employ of many separate railroads, manufacturers, colleges and consultants. Listing the specific results of research in the industry, the speaker pointed with pride to the pioneering of the roads in air-conditioning, which "has given a fillip to the air-conditioning industry generally."

The shippers' viewpoint on carrier problems was presented by J. E. Bryan, president, National Industrial Traffic League, who centered his discussion on reasons why the roads have lost traffic to the trucks. Believing that l. c. l. and branch line traffic has been neglected, he declared that in improving freight service "you begin with your trainload and are going down, and are not starting from the bottom and building up." He urged that the latter course be followed. Expanding his point, he asserted that a shipper that finds it to his advantage to use trucks for l. c. l. often seeks to take care of his carload business in the same manner. He added "that very little has been done by the soliciting forces to show shippers how the rails can beat the trucks and they can beat them if they try." In closing the speaker asked whether a body similar to the Advisory Boards to handle traffic and rate questions might not be established as an informal framework for group meetings "where we can sit around the table and fight it out."

Opening the dinner in the evening, President Pelley expressed regret that Ralph Budd, member of the National Defense Advisory Commission in charge of transportation, could not be scheduled to appear, as he had originally hoped, and substituted what he termed a "report from us as to the part of the railroads in the de-

fense of the nation." Analyzing one by one the causes of congestion in the last war, the A. A. R. chief described how they are being forstalled now, declaring that the railroads have "twin reasons" for confidence—"we have better railroads and better organization to get the best use out of them."

Main address of the evening was delivered by Clarence F. Lea, chairman of the House Committee on Interstate and Foreign Commerce, who scanned the relation of government to transportation, the Transportation Act of 1940, of which he was co-author, and the nature of the "public interest." Of rates Congressman Lea declared: "If we are to preserve to the country the benefit of inherent value of each of these agencies, we must protect the rates of each in that useful field of service which constitutes each particular function of value to the country. . . . In the proper adjustment of the rate structure there should be little room for cutthroat competition; neither should there be justification for excessive rates because of lack of competition. It may well be that carrying out this purpose will require a greater degree of initiative by the Interstate Commerce Commission in establishing a proper rate structure than has heretofore been the practice."

First shot in the six-man panel discussion on "Railroad Sevice and How It May Be Further Improved" was fired by Charles Donley, former president, National Association of Shippers' Advisory Boards who described the activities of the boards, emphasizing that they are useful not only with respect to car service, but as well "in the promotion of the right kind of business dealings" and as open forums, the conclusions of which can be collected and presented as a national picture of shipper opinion. He also discussed the question of substitution by industry for transportation, asserting that the struggle of "the laboratory versus the railroads" makes a flexible freight cost a necessity. On traffic solicitation he pointed to the importance of the local agents and "wondered" why the roads had eliminated so many.

J. A. Phillips, chairman, Railway Labor Executives Association, speaking for the organized employees, expressed the belief that the railroads must adapt themselves to an "era of low inventories," that "you cannot move the world with one engine and one caboose, one engine crew and one train crew and take your place as an effective competitor in the transportation field of tomorrow." He also argued for increased purchasing power "even though reduced profits be the result."

E. E. Norris, president of the Southern, stepped in next with a talk on attitude toward the public, declaring that former "monopoly mind" in all ranks of railroading, together with rigid regulation and rule-worship, "has produced a bumper crop of apathy, unfriendliness and cold-blooded efficiency." He found the first answer to the question of service improvement "in the difference between the attitude, the words and the action of railroad men, and the attitude, the words and the action of workers in competing transport agencies." Expanding this point he advised his colleagues to try what the Southern did several years ago—send its keenest men to call at railroad stations and offices, airline terminals and bus and truck company offices and ask questions as patrons. He guaranteed that "the report your men will turn in will probably shock you." In closing he urged a *humanizing* of the railroad business.

Placing the operating officer's viewpoint on the record, R. H. Smith, vice-president and general manager, Norfolk & Western, expressed some pessimism about the future of passenger business—especially because of air transport—and urged that the lines concentrate rather on the improvement of freight service, in which rail carriers can shine. Using his own road in illustration, the speaker pointed to modern power, scientific fuel control and advanced operating technique as the most field of exploitation, being "personally convinced that the foundation for that improvement lies in the further modernization and improvement of the coal burning freight locomotive along with the constant adaptation of existing track facilities to the efficient operation of that better locomotive."

Characterizing the new Transportation Act as a "forward step" but not "the answer to the railroad problem," J. T. Saunders, vice-president (system freight traffic), Southern Pacific, pointed to the provision for a Transportation Board as being of particular importance as an "opportunity to remedy the serious defects in the studies on public aids to transportation issued by the Federal Co-ordinator of Transportation." In an intensive discussion on "pricing transportation," Mr. Saunders declared that there is too much "technical legal rate-making" and not enough "practical rate making." Citing the obstacles placed in the way of changing the "sacred cow" of railroad rate relationships by the complexity of the tariff structure, laws, federal and state commission orders and "the eternal conflict of selfish interests," he asked for "the solution of fundamental approach" through "rate makers and tariff executives with ability and power to make rates in the interest of a national transportation system as a whole."

Analyzing *in extenso* the enlarged duties of railroad law departments in dealing with regulatory bodies growing in power and in number, Jacob Aronson, vice-president (law), New York Central, described their battles as taking place "with the railroad in the middle as the helpless victim who is compelled to fight in both directions lest it emerge with more masters than it is physically simultaneously to obey." Of taxation problems he said: "The far-flung activities of the railroad make it vulnerable to all, or nearly all, forms of present-day taxation, and it is no exaggeration to say that the grief of the law department in dealing with current taxation is exceeded only by the financial grief which is imposed on the treasurer who must pay and pay and pay."

Final item on the program was presented by R. V. Fletcher, vice-president and general counsel, A. A. R., who described the activities and organization of the Association. Characterizing the formation of the A. A. R. in 1934 as the result of public demand for "co-ordination" and a belief that the railroads' salvation lay in a concert of policy and action, Judge Fletcher emphasized that the Association has had to "walk circumspectly" so as to avoid the "grasping clutches of the Sherman law as administered by the enterprising gentleman who is charged with the duty to enforce the statute." Proceeding next to discuss the criticism that the Association has accomplished little in the way of co-ordination and consolidations, he pointed out that appropriate committees have made a careful study of 685 projects and have brought about the accomplishment of but 29, abandoning the remainder as "impracticable and lacking in opportunities to effect economies." Said he: "The small proportion of projects approved in comparison with those suggested illustrates the error of the popular view that 'co-ordination' is the open sesame to success."

THE PENNSYLVANIA ANNOUNCES the award of the Frank Thomson college scholarships to Robert Young, son of B. B. Young, supervisor of contracts, Western region, Chicago, and D. V. Hanlon, son of F. J. Hanlon, stockman, Meadows shops, New York division, after competitive examinations. Mr. Young will enter the school of engineering at Princeton University, and Mr. Hanlon will undertake an engineering course at Purdue University.

I. C. C. Plan Wipes Out Rock Island Stockholders

WASHINGTON, D. C.

FINDING that the equity holdings of the Chicago, Rock Island & Pacific have no value, the Interstate Commerce Commission has promulgated a final plan of reorganization for this road which would pare down the total capitalization from $553,313,003 to $351,180,912 and would cut the annual fixed interest charges from $13,726,179 to $2,415,519. Chairman Eastman wrote a lengthy concurring-in-part opinion in which he criticized the method of allocation of new securities to the various mortgaged divisions of the system and approved the majority's decision to leave the way open for the bondholders of the Rock Island, Arkansas & Louisiana to negotiate for the sale of that road to the Louisiana & Arkansas; while Commissioner Miller penned a dissenting-in-part statement condemning certain fiscal practices approved by the majority and advocating his well-known one-system railroad plan for the country.

The commission departed in several details from the proposed plan of reorganization for this road which was drafted by Examiner P. A. Conway in September of last year, details of which were outlined in the *Railway Age* of September 30, 1939, page 495. In that plan Examiner Conway would have reduced the capital structure from $458,838,944 to $306,497,380 and the total fixed interest charges from $14,052,769 to $2,438,547, the difference in the total capitalization of the present company in the commission's final plan and the examiner's proposed plan being due to the accrued interest which has piled up during the period of trusteeship.

Under the commission's plan the new capital structure and annual charges as of January 1, 1941, the effective date of the plan, will be as follows, with no-par-value common stock stated at $100 a share:

	Principal Amount	Annual Requirement
Undisturbed equipment obligations	$28,002,124	$737,877
First-mortgage 4 per cent bonds	36,941,060	1,477,642
Sinking fund		200,000
Total fixed interest debt	64,943,184	2,415,519
Capital fund (Based on 2 per cent of 1939 operating revenues)		1,569,356
General-mortgage 4½ per cent income bonds	60,000,000	2,700,000
Sinking fund		300,000
Total debt	124,943,184	6,984,875
Preferred stock, 5 per cent	75,000,000	3,750,000
Total debt and preferred stock	199,943,184	10,734,875
Common stock	151,237,728	
Total capitalization	351,180,912	

The new securities will be distributed to the holders of the outstanding bonds and claims, according to the following table, the amounts stated being in most instances the approximate amounts that will be exchanged for each $1,000 bond, and pledgees being treated as though the pledged securities were outstanding:

Outstanding issue	New first-mortgage bonds	New general-mortgage income bonds	New preferred stock	New common stock	Total
C., R. I. & P. general-mortgage 4 per cent bonds	$96	$314	$445	$425	$1,280
C., R. I. & P. first and refunding mortgage 4 per cent bonds	65	161	192	528	946
C., R. I. & P. secured 4½ per cent bonds, series A	65	161	192	528	946
C. & M. first-mortgage 5 per cent bonds	1,350	...	...	...	1,350
C., O. & G. consolidated mortgage 5 per cent bonds	52	301	486	272	1,111
St. P. & K. C. S. L. first mortgage 4½ per cent bonds	59	117	140	569	885
R. I., A. & L. first-mortgage 4½ per cent bonds	73	201	213	457	944
L. R. & H. S. W. 4 per cent bonds	129	357	378	178	1,042
B., C. R. & N. consolidated first mortgage 5 per cent bonds	...	100	261	453	814
R. F. C. loan	96	265	231	353	945
Banks' loan	61	135	161	552	909
C., R. I. & P. unsecured convertible 4½ per cent bonds	...	...	...	300	300
General creditors	...	...	...	300	300

Included in the commission's capitalization is $11,000,000 of first mortgage bonds to be sold for cash to provide new money, and $150,000 of common stock (stated at $100 a share) to pay general creditors' claims estimated at $500,000. In lieu of the sale of $11,000,000 of new first mortgage bonds, it is provided that the reorganized company may borrow $11,000,000 and pledge as security therefore new first mortgage bonds in the principal amount consistent with provisions of the plan.

The equities of the holders of the preferred and common stock are found by the commission to have no value, and no provision is made for the stockholders in the plan. Equipment trust obligations and trustees' certificates will remain undisturbed under the final plan.

The commission also finds that it should be left to the discretion of the reorganization managers as to whether a new company should be formed and become the reorganized company under the laws of such state as they may determine or whether the Chicago, Rock Island & Pacific, a corporation of the states of Iowa and Illinois, shall become the reorganized company, either retaining its charter from both states or abandoning its charter from either of such states.

In any event, says the commission, the reorganized company should own all the properties of the debtor company, the properties of the Chicago, Rock Island & Gulf; Choctaw, Oklahoma & Gulf; St. Paul & Kansas City Short Line; Rock Island, Arkansas & Louisiana; Rock Island, Stuttgart & Southern; Rock Island Memphis Terminal; Rock Island Omaha Terminal; and the Morris Terminal. The plan also provides that there shall be conveyed to the reorganized company all of the properties, except the coal properties, of the Rock Island Improvement Company, a wholly-owned subsidiary of the debtor. The plan also provides that the stock of the Rock Island Motor Transport Company would be owned by the new company.

There will be five reorganization managers who will carry out the plan under the supervision and control of the court. One of the managers will be appointed by the protective committee for holders of the debtor's general mortgage four per cent bonds; one by the protective committee for holders of the debtor's first and refunding mortgage four per cent bonds and secured 4½ per cent bonds, series A; one by the trustee under the indenture under which the debtor's 30-year convertible bonds were issued; one by the Reconstruction Finance Corporation and bank creditors; and one by the protective committees for holders of the Choctaw & Memphis first mortgage five per cent bonds and Choctaw, Oklahoma & Gulf consolidated mortgage five per cent bonds, St. Paul & Kansas City Short Line first mortgage 4½ per cent bonds, and the Rock Island, Arkansas & Louisiana first mortgage 4½ per cent bonds. It is further provided that if any of these groups cannot agree on a manager, the court shall appoint one.

The plan also provides that if deemed desirable and so ordered by the court, the plan, after it has been found to be fair and equitable by the court, may be executed by a sale at not less than a fair upset price to be fixed by the court.

After criticizing the mileage prorate formula, which, he alleges, formed the basis of the allocation of securities to the various mortgaged lines of the system,

Chairman Eastman outlines what he considers should be the principle which should underlie any formula for allocation of expenses in a railroad system.

"The general principle," he writes, "which should underlie any such estimate as I propose of the productive results of parts of a system is that the rates, fares, and charges from which the revenues are derived are designed to meet system expenses and pay a profit, if possible, regardless of the particular parts in which such expenses are incurred. Where a service is performed over two or more parts it most certainly is not the intent, for example, that the charge shall fail to cover the expense incurred in that service on parts A and B but much more than cover the expense incurred on part C. Revenues should be allocated in proportion to service performed and the corresponding expenses determined by the application, in general, of an average system ratio."

The Chairman realizes that it is not a simple matter to devise such a formula, but he is confident that it can be done. "In fact," he says, "I have seen such formulas which seemed to me to have much merit."

Turning to the allocation of securities to the RIAL bondholders, Mr. Eastman is glad that the commission did not foreclose the possibility of permitting these bondholders to sell the property to the L. & A., which has already made them an offer—more attractive, in his analysis, than that in the commission's plan. However, he does not believe that the RIAL is entitled to any preferred treatment as is given it by the plan in allocating to its bondholders a block of bonds and stock in addition to their regular allotment of new securities. Rather, it is his opinion that the RIAL is not an integral part of the Rock Island and that it would be more in the public interest to permit the L. & A. to purchase it since it would complement its present lines.

Taking issue with the commission's theory that the present depression in railroad earnings is permanent, Commissioner Miller objects to obliterating the claims of the equity holders and would issue warrants giving them the right to purchase stock in the future and share in the earnings of the company, should there be any over and above those required to service the present capitalization.

However, Commissioner Miller feels that the only salvation for the railroads is their merger into one system for the entire country. This, he feels, must be accomplished by legislation, since it seemingly will not be done by voluntary action.

Commissioner Miller has many objections to the details of the issuance of the new securities, but he especially notes the inclusion of the capital fund and concludes that "It is justified only on the theory that we should direct the disbursement of funds received from railroad operations."

"Actual and potential economic and technological changes and the resulting fluctuations and uncertainties with regard to earning power point to two conclusions," observes the commissioner. "These are that the fixed interest debt policies of the railroads are largely obsolete and that greater flexibility with regard to annual interest payments is desirable. There is no magic in the fixity of rate of interest. Interest requirements can be met only from earnings. If there are not sufficient earnings the fixity of the interest rate offers no salvation to the investor. Indeed, its effect in many cases will be merely to further impoverish the company before it passes into the control of receivers or trustees. The main reliance of railroads for future borrowing therefore should be upon obligations where interest is dependent wholly or in part on earning power, such debt to be given a comprehensive mortgage upon the property without prior fixed interest bonds or subject only to a limited amount of such fixed interest debt. If debt with fixed interest is issued, it should be subject to such sinking fund requirements, preferably before contributions are made to a sinking fund for the general mortgage income bonds, as will insure rapid retirement."

Freight Revenues and Commodity Values—1939

WASHINGTON, D. C.

RAILROAD freight revenues in 1939 averaged only 8.43 per cent of the total value at destination of all commodities transported, according to the latest issue of the study in that connection which has been published by the Interstate Commerce Commission's Bureau of Statistics at three-year intervals since 1931. This percentage is derived from the $40,042,370,000 estimated total value of commodities shipped in 1939, and last year's freight charges of $3,375,883,000; and it compares with a 1930 figure of 6.67 per cent, 10.66 per cent for 1933, and 8.47 per cent for 1936.

In the present study the tonnage figures used are the tons originated or terminated, whichever was larger. Previously the tons originated had been used exclusively; but the introductory statement points out that this variation does not materially affect the foregoing comparisons of over-all percentages. "In the case of certain individual commodities, however, the use of the number of tons terminated gives an average freight revenue per ton considerably different from the average based on tons originated."

Like those of its predecessors, the present statement's tabulations show for each of the 157 commodity classifications the tonnage handled by Class I roads, the total freight revenue, the freight revenue per ton of 2,000 lb. and the wholesale market value of the commodities. The compilation was prepared by Statistical Analyst Edward Crane, who also prepared the 1937 edition of the study, reviewed in the *Railway Age* of November 20, 1937, page 719.

The tabulations show averages for each of the commodity groups as follows:

	Freight Revenue		Value at Destination		
	Aggregate (thousands)	Per ton	Aggregate (thousands)	Per ton	Per cent freight revenue of value at destination
Products of Agriculture	$516,776	$5.32	$4,222,189	$43.47	12.24
Animals and Products	166,181	10.67	3,619,651	232.37	4.59
Products of Mines	945,284	1.95	3,340,839	6.88	28.29
Products of Forests	206,630	3.83	1,499,983	27.80	13.78
Manufactures and Miscellaneous	1,288,718	5.38	24,329,532	101.57	5.30
Grand total, carload traffic	3,123,589	3.50	37,012,194	41.51	8.44
L. c. l. freight	252,274	16.96	3,030,176	203.71	8.33
Grand total, carload and l. c. l. traffic	3,375,863	3.72	40,042,370	44.17	8.43

Within these groups there are, of course, various extremes. In the whole there is a range in the per cent freight revenue of value at destination from 62.41 per cent on fresh grapes to 0.91 per cent on tobacco, manufactured products. Among products of agriculture there is the range from the aforementioned fresh grapes figure to 2.03 per cent on tobacco leaf; animals and products from 21.89 per cent on live animals, n. o. s., to 1.4 per cent on leather; products of mines from 59.3 per cent on gravel and sand (other than glass or molding) to 4.67 per cent on products of mines, n. o. s.; products of forests from 49.74 per cent on posts, poles and piling to

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1.91 per cent on crude rubber (not reclaimed); manufactures and miscellaneous from 40.9 per cent on furnace slag to the aforementioned 0.91 per cent on tobacco, manufactured products.

The study's introductory statement reprints from previous issues the following comment as to the significance of the figures:

The figures do not show nor are they intended to show whether freight rates are too high or too low. Freight rates are not proportionate to the value of commodities. To make them so would produce exorbitant rates in many instances, although it is true that the more valuable finished products usually are made to bear higher rates than the lower valued raw products.

If freight rates were based on commodity values alone, the information given in this statement still would be inadequate to prove whether the freight charges were proper for various reasons, some of which are mentioned below; nevertheless, it may be said that the ratios of freight revenue to the value of the commodities shown do possess some interest in the discussion of the value of service, although they have no bearing on the cost of transportation service. Notwithstanding its limitations, a statement of this kind is found convenient to have available in discussions of freight rates and other economic problems. The information given has been found helpful in making a comparison of the character and value of freight transported by railways with that moved by other agencies of transportation. It is of interest to know that the total freight burden for 1939 was only 8.43 per cent of the total value of the commodities carried. The statement also provides a convenient reference for commodity values in tons of 2,000 pounds when they are currently quoted in some other unit.

Some More Pioneering Needed

The enormously over-expanded transportation plant that the nation now has to support had its origin, at least in part, in the desire of shippers to reduce their transportation costs, coupled with technical improvements in the motor vehicle and the vast program of highway expansion, which gave shippers the opportunity they had been looking for. The costs of these bargain-seeking shippers could have been reduced by the revision of railroad rates (where railroad costs were low enough to permit rates lower than the expenses of providing alternative methods of transportation). Such railroad rate revisions were not made, however. The duplicating plant was built and the question now is how best to minimize its burden.

Present still-dominant theories of railroad pricing date back to the beginning of the railroads. The early railroads at first handled only higher grade freight for comparatively short distances. As their revenues increased from this traffic, they saw the opportunity to handle lower grade freight at lower rates and extend their lines and move freight for greater distances at lower ton-mile costs. This added traffic was developed upon a "marginal" or "added cost" basis. Out of this evolved the "what the traffic will bear" theory of rate-making.

What the shipper could afford to pay under conditions existing *at the time* (the italicized words constitute an important qualification) was developed into a rate structure. This structure worked excellently while the railroads were almost the sole agency of transportation, but the advent of the truck and improved methods of water transportation (with their practice of handling only the more remunerative freight) has raised the question whether the railroads can successfully continue their historic pricing policy. The loss of a large volume of traffic has kept unit costs higher than they might otherwise have been and has resulted in a general level of freight rates out of line with the index of commodity prices. When railroad rates on any commodity are out of line with the prices of that commodity, the shipper is given a powerful incentive to develop alternate methods of transportation.

Prior to the regulation of motor transport, these carriers made their rates not higher, but generally lower than rail rates. Water transport, only recently made subject to comprehensive regulation, developed in much the same manner. With the advent of Interstate Commerce Commission regulation of truck rates in 1936, the predominant opinion seemed to be that it would be mutually advantageous to stabilize truck rates at somewhere near the rail level. Such reasoning failed to give adequate consideration, however, to the fact that the flexibility, more complete and oftentimes more expeditious service by truck and the opportunity of the trucker in the rail rate structure to "pick and choose" his traffic *gave the motor carriers the advantage at equal rates.*

Equal rates for dissimilar service is not genuine parity of rates. And it is noteworthy that water transport rates are usually made materially lower than railroad rates as an offset to the usually less complete and slower service by water. It is not necessary to change the fundamental principle of "charging what the traffic will bear." It is only necessary to look at the rates which potential traffic will bear today, rather than what it could bear at some time in the past. *Potential traffic in times past consisted of commodities which could not move at the normal rate level. Potential traffic now consists largely of traffic which is moving by rival methods of transportation, but which the railroads can handle at lower rates and at lower costs.*

The Transportation Act of 1940 emphasizes the importance of comparative costs in settling differences between rival agencies of transportation and commands more explicitly than ever before the recognition in rate-making of the "inherent advantages" of each form of transportation.

The employment of comparative costs by the carriers and regulatory authority in fixing minimum rates, and the recognition of such costs and the costs of private transportation in fixing the general level, appears to be the practical way to control, in the public interest, the development of this *unavoidably competitive* industry. The sound application of costs in competitive rate-making would direct traffic into its natural economic channels and eliminate the maintenance and continued expansion of costly surplus facilities.

That, anyhow, is the conclusion to which all the available facts seem to point. If there is any other possible solution which will meet the exigencies of the situation, we should welcome the opportunity to make it known.

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NO. 130 OF A SERIES OF FAMOUS ARCHES OF THE WORLD

Photo by Fratelli Alinari, from "Bridges" by Charles S. Whitney

RUINS OF BRIDGE AT NARNI

ITALY

This bridge, which is located outside the city of Rome, was constructed by Augustus Caesar to carry the Flaminian Way across the Nera. It was built of white marble with four spans of different widths and heights, the largest span is believed to have been between 111 ft. and 142 ft. across, which is larger than any other arch of the Romans. The ruin pictured above stands 105 ft. above the surface of the road, and is one of the most beautiful of its type.

» » » The Security Sectional Arch for the locomotive firebox was designed and developed to further the economy and effectiveness of the steam locomotive. To realize the utmost from your power, be sure that every locomotive leaving the roundhouse is equipped with a *complete* arch.

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NEWS

RR Interest in Seatrain Okay

Examiners believe 15 % interest by Mo. P. and T. & P. accords with public interest

Examiners E. J. Hoy and M. J. Walsh have recommended in a proposed report an Interstate Commerce Commission finding that continuance of the stock interest of the Missouri Pacific and the Texas & Pacific in Seatrain Lines, Inc., will not prevent that water carrier from being operated in coastwise and Cuban trade in the interest of the public and with advantage to the convenience and commerce of the people and that it will not exclude, prevent, or reduce competition on the routes by water under consideration. The proposed report comes after further hearing in the No. 25546 proceeding involving M. P. and T. & P. applications under section 5(19-21) of the Interstate Commerce Act in the matter of installation of common carrier service by water other than through the Panama Canal.

Other recommended findings are that the interest of M. P. and T. & P. in Seatrain is such an interest as is contemplated by section 5(14) of the act; and that the M. P. and T. & P. may and do compete with Seatrain for coastwise and Cuban traffic.

The foregoing questions were raised when applicants asked for modification of certain conclusions of the prior report at the same time the commission considered the railroads' applications for approval of an extension of Seatrain's operations to include services between Hoboken, N. J., and Texas City, Tex. Since October, 1932, Seatrain has operated vessels on which it transports freight in railroad cars between Hoboken and Belle Chasse, La., via Havana, Cuba. The prior report in the case revealed that the M. P. and T. & P., on October 14, 1933, had a combined voting power in Seatrain equal to 15.45 per cent.

Discussing evidence adduced at the further hearing, the examiners note that much of it bears on the question of whether extension of Seatrain service to and from Texas City would be in the public interest and of advantage to the convenience and commerce of the people. "Because of the recent clarification of section 5," the proposed report goes on, "it seems unnecessary to discuss this evidence in detail." The "clarification" referred to is the change in the Panama Canal Act which became the basis of the waterway interests' last-ditch fight against passage of the Transportation Act of 1940.

After outlining the present law in this connection, Examiners Hoy and Walsh say: "It will be noted that there is no longer any requirement that the commission find that Seatrain's service to and from Texas City is being operated in the public interest and is of advantage to the convenience and commerce of the people before extending the time within which applicants' interest in Seatrain may continue. The precedent finding in lieu thereof is that a continuance of applicants' interest in Seatrain will not prevent Seatrain from being operated in the interest of the public and with advantage to the convenience and commerce of the people. The record shows that Seatrain is independently operated, and that applicants have no control over its operations. . . . The record warrants the conclusion that if applicants divested themselves of their interest in Seatrain the operations of the latter would continue as they have been and that the extent of the competition between applicants and Seatrain and between Seatrain and its competitive water carriers would be unchanged."

Chicago-Cleveland Mercury Service a Year Old

The New York Central's Mercury service between Chicago and Cleveland, Ohio, completed a year's operation on November 12. Prior to November 12, 1939, Mercury service had been operated between Cleveland and Detroit, Mich. During the period from November 12, 1939, to October 31, 1940, the two units of the train carried 266,008 passengers and earned gross revenues of $1,125,425. Between Chicago and Detroit, passengers totaled 156,180 and revenues $754,458. Between Cleveland and Detroit passengers totaled 109,828 and revenues $370,967.

October Export Traffic

Export traffic through Atlantic and Gulf ports in October was approximately 14 per cent greater than in the same month one year ago, according to reports compiled by the manager of port traffic, and made public on November 12 by the Association of American Railroads.

Cars of export freight, other than grain, unloaded at Atlantic and Gulf ports in October this year totaled 43,679 cars, compared with 38,349 cars last year, or an increase of 5,330 cars. Cars of grain for export unloaded in October at these ports amounted to 420, compared with 4,982 in October last year, a decrease of 92 per cent. The A. A. R. statement says that there has been no congestion or delay to traffic at the ports, which is due to the cooperation of steamship lines, port authorities, exporters and shippers."

Rap Bankers' Role in Receiverships

Wheeler and Truman rehash the Milwaukee's 1925 insolvency in further report

The Senate this week received from Senators Wheeler and Truman three additional reports dealing with alleged financial abuses attendant to railroad reorganizations. The reports, which are the outgrowth of work done during the past several years by the Senate interstate commerce subcommittee investigating railroad financial practices and holding companies, are numbered parts 18, 19, and 20 of Report No. 25, and have as their subject matter the 1925-1928 receivership and reorganization of the Chicago, Milwaukee, St. Paul & Pacific. In all three reports, which are the forerunners of others to follow on this subject, the theme is repeatedly stressed that the crying need in railroad reorganizations is to insure "real representation of security holders, free to act independently rather than as cats'-paws for bankers or other insiders."

Discussing the influence of the road's bankers in the receivership of 1925, part 18 says that preparations for the receivership were made in large part by the railroad's traditional bankers, Kuhn, Loeb & Co. and the National City Company, then an affiliate of the National City Bank of New York.

Steps were then taken, it continues, to conceal the role of these companies from the public, and to deny or minimize the part they played, during subsequent testimony before the Interstate Commerce Commission.

"The firm of engineers, Coverdale & Colpitts, which recommended the receivership, were paid by the railroad," concludes this part of the report, "but were actually employed at the behest of the bankers. The receivership papers, including the bill of complaint entered by a creditor, the railroad's reply admitting insolvency, and the court order appointing a receiver, were all prepared by attorneys for the bankers. The bankers chose the court in which the receivership procedure took place, and selected or 'suggested' to the judge the names of two of the three receivers. Weeks before the road went into receivership, the bankers' lawyers were working on reorganization plans for the company and the bankers themselves became the reorganization managers. The protective committees, supposedly representing stockholders and bondholders, were actually selected by the bankers and gave rubber-stamp approval to the

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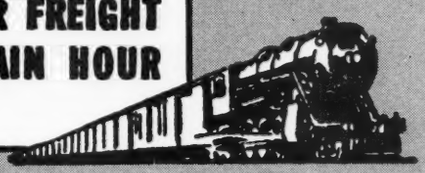
Railroad Efficiency more than doubled

14,877 TON MILES PER FREIGHT TRAIN HOUR

1920



32,150 TON MILES PER FREIGHT TRAIN HOUR

1939

TON miles per freight train hour has been more than doubled in the past 20 years.

So has locomotive capacity and the Superheater Company steam engineers have played a prominent part in that development, by constantly improving devices for locomotive efficiency and economy.

Front End of Locomotive, Showing Type "E" Superheater and Steam Pipes in Place

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bankers' reorganization plan and other acts of the banking interests."

In part 19 of the report, which is subtitled, "Role of Guaranty Trust Company," Senators Wheeler and Truman declare that "The way in which Guaranty Trust Company of New York, trustee for the railroad's bondholders, cooperated with other banking interests during the 1925-1928 receivership of the Chicago, Milwaukee, St. Paul & Pacific, is further evidence of the need for thorough reform of railroad reorganization practices."

"Guaranty, however," the report continues, "had interests different from those of some of the bondholders it was supposed to represent. It sought appointment as trustee to the new company which would emerge from the reorganization. The power to award this trusteeship lay in the hands of the railroad's bankers, Kuhn, Loeb & Co. and the National City Company, who were reorganization managers. Also, Guaranty was dependent chiefly upon these bankers for any fees which would be awarded them for their services in the reorganization. Thus Guaranty's interests lay with the bankers rather than with all of the bondholders whose interests they were supposed to protect."

After alleging that Guaranty cooperated fully with the plans of the reorganization managers and their lawyers, opposing the admission of independent bondholders' group to a full voice in the reorganization proceedings and opposing "with especial vigor attempts by these bondholders' groups to have the bankers' reorganization plan subjected to prompt scrutiny in open court," the report concludes that Guaranty received the trusteeship promised in advance by the bankers and was awarded fees of $278,000 for its services in the receivership.

"Guaranty's lawyers," it continues, "received an additional $342,500. In addition, a Guaranty vice-president received $25,000, in spite of the fact that the work he did in an individual capacity was identical with the work which he did in his corporate capacity, and for which Guaranty was separately paid. Altogether the company and its vice-president and lawyers received about two-thirds of a million dollars for their services, plus a profitable trusteeship in the reorganized company—thus giving them a similar role in the current (1935) bankruptcy of the St. Paul."

Part 20 of the report, in the words of the committee, deals "with the $7,000,000 cost of the receivership and reorganization of the St. Paul and the devices whereby government supervision of this burden on investors was avoided." It goes on to allege that after Congress gave the commission power in 1920 to decide on the issuance of new securities in reorganization and the fees connected therewith, the reorganization managers decided to evade the commission's authority by arranging to have the stockholders assessed $1.50 per share to pay the reorganization costs. After stating that the railroad company, acting for the bankers, contested and won in the United States Supreme Court a decision permitting them to take such action over the I. C. C.'s protest, the committee reaches the conclusion that "The evasion of federal regulation in this case is not an isolated instance, but rather an indication of the general attitude held by interests which still dominate in the field of railroad reorganizations. It is clear that so long as this hostile attitude persists, the regulation of reorganization abuses will be hard put to keep up with its fast-moving opponents."

R. B. A. Holds Annual Dinner

Over 1,400 members of the Railway Business Association and their railroad guests attended the annual dinner of the association in New York on November 14, a "no speaker" session. Each person attending was presented with a copy of a 100-page condensation of a book by P. Harvey Middletown, secretary, Railway Business Association, entitled "Railways and the Equipment and Supply Industry" to be published shortly, which was described in the *Railway Age* of November 9, page 692.

T. P. & W. Seeks Right to Protest Against Floods

The Toledo, Peoria & Western on November 12, appealed to the Illinois supreme court to reverse a ruling of the Illinois Commerce Commission denying the railroad the right to elevate its tracks at North Main Street in East Peoria, in an effort to protect them against floods from a nearby creek. The appeal was from a decision of the Tazewell Circuit Court which upheld the commission.

Express Agency Gets Illinois Truck Routes

The Interstate Commerce Commission, Division 5, has conditionally granted the Railway Express Agency a certificate authorizing common-carrier trucking operations over three Illinois routes—between Bloomington and Minonk, Decatur and Pana and Mattoon and Delavan. Like those imposed in cases where railroads are applicants, the conditions are designed to insure that the trucking services will be auxiliary to or supplemental of railway express service.

Packers Seek to Enjoin Application of Icing Charges

A suit to enjoin the railroads from applying higher icing charges to fresh meat and packing house products has been filed in the district court at Chicago by the "Big Four packers," including Wilson & Company, Inc., the Cudahy Packing Company, Swift & Company, and Armour & Company. The charges involved were those fixed by the Interstate Commerce Commission in Docket No. 20,769 to become effective on January 1. Under the Commission's order, present icing charges are increased and additional charges are provided for the supervision of icing, ice haulage and accounting.

The complaint contended that the order of the I. C. C. approving the new charges was in part unlawful because there was no finding that "the carrier defendants fail to receive adequate and reasonable compensation for the line-haul rates for costs incurred in connection with the supervision, accounting and ice haulage," that there was "no finding that the aggregate charges presently applicable to shipments of fresh meats and packing house products constitute less than reasonable charges," and that there was no finding that the present method of the carriers in securing compensation for supervision, accounting and ice haulage was unlawful. The complaint asks the court to annul the order of the Commission.

Club Meetings

The Railway Club of Pittsburgh will hold its next meeting on November 21 at the Fort Pitt hotel, Pittsburgh, Pa., at 8 p. m. A. F. Stuebing, development engineer, Carnegie-Illinois Steel Corporation, Pittsburgh, will present a paper entitled "High Tensile Steels in Railroad Service" supplemented by moving pictures entitled "Making and Shaping of Steel," beginning at the ore mines. Dinner will be served for members and guests at the hotel at 6:30 p. m., preceding the meeting.

The New England Railroad Club will hold its next meeting on Wednesday, December 11, at the Hotel Touraine, Boston, Mass., at 6:30 p. m. Joseph B. Eastman, chairman of the Interstate Commerce Commission, will present an address. The regular meeting night falls on Tuesday, December 10, but the meeting has been postponed one day in order that Mr. Eastman may address the club.

New Southern Streamliners Named "Southerner" and "Tennessean"

The Southern will establish two new deluxe coach train runs between New York and the South early in 1941, to be called the "Southerner" and the "Tennessean." Announcement of the purchase of Diesel-electric locomotives and coaches to outfit the runs was reported in the *Railway Age* of October 19, page 569, and October 26, page 606, respectively. The "Southerner" will furnish a new daily service in both directions between New York and New Orleans, La., via Washington, D. C., Atlanta, Ga., Birmingham, Ala., Meridian, Miss., and Hattiesburg on a substantially speedier schedule than now exists. The "Tennessean," which will replace the present Memphis Special (designated as No. 25 and 26), will operate from Washington, D. C., to Memphis, Tenn., via Lynchburg, Va., Roanoke, Bristol, Tenn., Knoxville and Chattanooga, handling sleeping cars between Knoxville and Memphis.

State Commissioners Meet in Miami, December 10 to 12

Round-table discussions on such topics as the state commissions and national defense, coordination of federal and state regulation of motor vehicles, telephone regulation, and utility financing will feature the fifty-second annual convention of the National Association of Railroad and Utilities Commissioners to be held at Miami, Fla., December 10 to 12. The program will also include addresses and reports of the Association's various committees.

Presiding at the convention will be the Association's president—Harry Bacharach,

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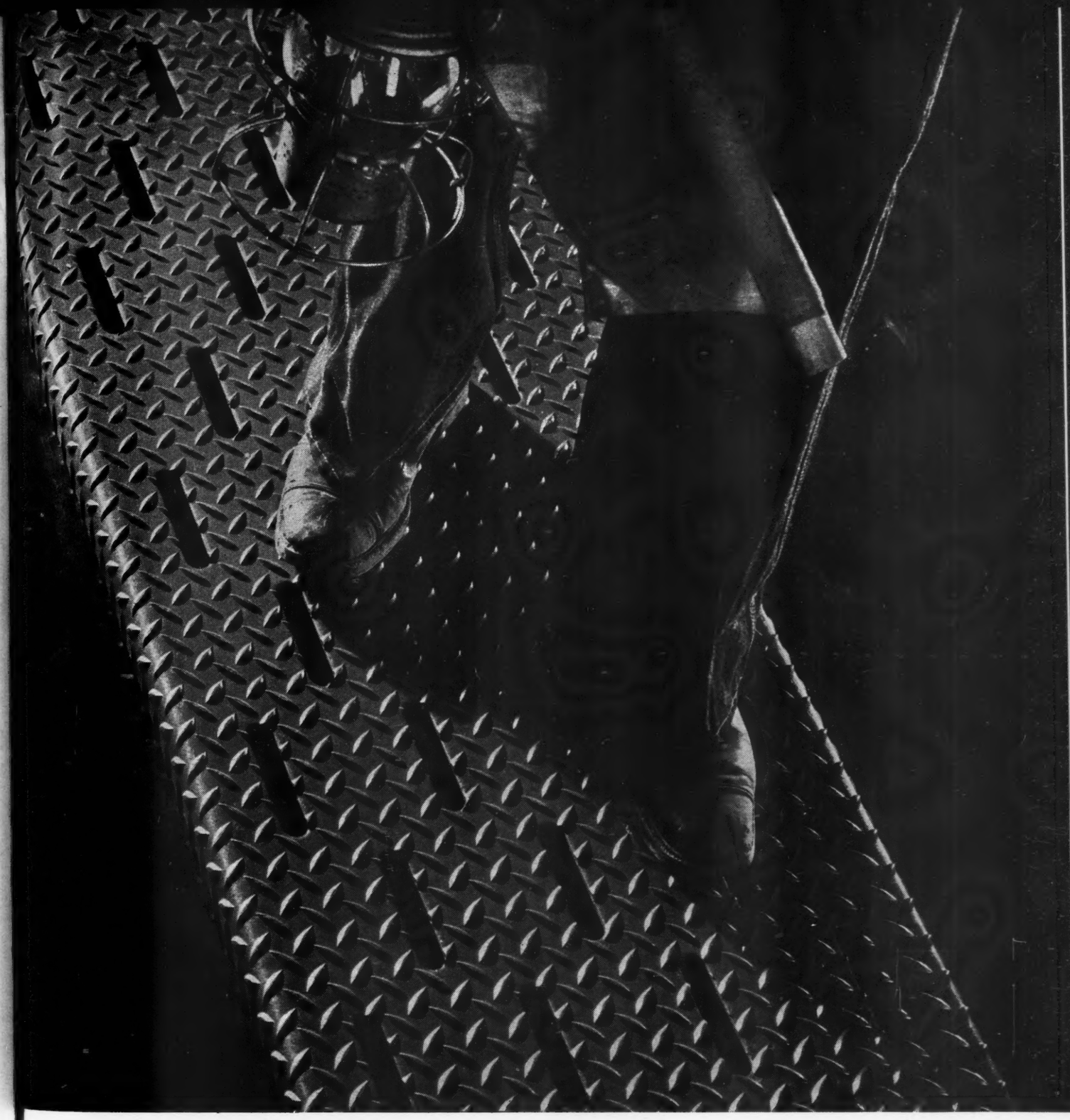

Newest application of "A.W." Rolled Steel Floor Plate—Slotted Type Super-Diamond Running Boards

Safety on rolling stock . . . "A.W." Rolled Steel Floor Plate is the first choice of railroad management for passenger car platforms, steps and trap doors; freight car running boards and brake steps; locomotive decks, steps and cab aprons. "A.W." Floor Plate protects passengers and crew against costly slips and falls. In the newest application of "A.W." Rolled Steel Floor Plate, running boards on freight cars are slotted for extra security. Rain and snow drain quickly, removing a dangerous hazard to working personnel. Slots are hand-hold size for added safety. Write for further facts.

ALAN WOOD STEEL COMPANY

MAIN OFFICE AND MILLS, CONSHOHOCKEN, PENNA. : : SINCE 1826 : : DISTRICT OFFICES AND REPRESENTATIVES—Philadelphia, New York, Boston, Atlanta, Buffalo, Chicago, Cincinnati, Cleveland, Denver, Detroit, Houston, New Orleans, St. Paul, Pittsburgh, Roanoke, Sanford, N. C., St. Louis, Los Angeles, San Francisco, Seattle, Montreal—A. C. Leslie & Co. PRODUCTS INCLUDE—Steel Products in Carbon, Copper or Alloy Analyses : : Sheared Steel Plates : : Hot Rolled Sheets and Strip : : "A.W." Rolled Steel Floor Plates : : Billets, Blooms and Slabs : : "Swede" Pig Iron : : Reading Cut Nails.

president of the New Jersey Board of Public Utility Commissioners. Discussion leaders participating in the round-table session on coordination of federal and state regulation of motor vehicles will include Interstate Commerce Commissioner William E. Lee. Among other things, this motor-regulation discussion will consider the Motor Carrier Act amendments contained in the Transportation Act of 1940; reciprocity agreements between states relating to motor carriers operating in more than one state; what should be the controlling considerations in the fixing of motor carrier rates; and uniform motor freight and rail classifications.

Freight Car Loading

Loadings of revenue freight for the week ended November 9 totaled 778,318 cars, the Association of American Railroads announced on November 14. This was a decrease of 16,479 cars, or 2.1 per cent, below the preceding week, a decrease of 3,270 cars, or 0.4 per cent, under the corresponding week last year, but an increase of 141,872 cars, or 22.3 per cent, above the comparable 1938 week.

As reported in last week's issue, loadings of revenue freight for the week ended November 2 totaled 794,797 cars, and the summary for that week, as compiled by the Car Service Division, A.A.R., follows:

Revenue Freight Car Loadings

For Week Ended Saturday, November 2

Districts	1940	1939	1938
Eastern	164,766	165,132	144,060
Allegheny	164,269	165,342	119,806
Pocahontas	46,561	56,398	49,808
Southern	110,263	110,775	98,833
Northwestern ..	126,096	120,205	92,650
Central Western.	126,879	126,633	115,519
Southwestern ..	55,963	56,623	52,291
Total Western Districts	308,938	303,461	260,460
Total All Roads	794,797	801,108	672,967
Commodities			
Grain and grain products	35,592	37,530	39,460
Live stock	19,830	19,809	19,152
Coal	125,305	154,994	128,063
Coke	12,350	12,121	6,267
Forest products.	40,872	37,380	28,338
Ore	61,981	56,976	23,496
Merchandise l.c.l.	155,303	159,160	157,834
Miscellaneous ..	343,564	323,138	270,357
November 2....	794,797	801,108	672,967
October 26.....	837,651	829,358	708,590
October 19.....	813,909	856,289	705,284
October 12.....	811,906	839,952	726,142
October 5.....	805,986	830,102	702,616
Cumulative Total, 44 Weeks ...	30,650,076	28,442,753	25,654,754

In Canada.—Carloadings for the week ended November 2 were 59,740, as compared with 64,379 cars in the previous week and 58,080 in 1939, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Nov. 2, 1940	59,740	27,513
Oct. 26, 1940	64,379	26,914
Oct. 19, 1940	58,931	26,305
Nov. 4, 1939	58,080	25,249
Cumulative Totals for Canada:		
Nov. 2, 1940	2,356,420	1,083,190
Nov. 4, 1939	2,139,979	936,529
Nov. 5, 1938	2,079,129	899,698

Automobile Box Car Situation Still Quite Tight

W. C. Kendall, chairman of the Car Service Division, Association of American Railroads, on November 8 issued a circular advising all railroads that "current demands and prospective increase in requirements for automobile device equipped cars are such as to necessitate the utmost efficiency in the utilization and handling of this equipment." He makes several specific suggestions for the handling of such equipment, adding that the effective cooperation of all roads "will aid in the successful handling of this traffic."

On the same day L. M. Betts, manager of the Division's Closed Car Section, issued a similar appeal in the form of a follow-through on Special Car Order No. 42 which provides for restricted handling of 50-ft. box cars with end doors 8 ft. 6 in. and wider in order to protect shipments of government trucks from the Pontiac, Mich., plant of the Yellow Truck & Coach Manufacturing Company. Asserting that "already the car supply at loading point is very close," Mr. Betts makes several specific suggestions to meet the situation. "The extreme urgency," he says, "justifies the request that you cooperate fully and unreservedly in the program herein outlined."

I. C. C. Valuation of Pipe Lines

The Interstate Commerce Commission has made public a summary of the final valuations of the 52 oil and gasoline pipe line companies which were listed as interstate operators when the valuation of such common carriers was begun in 1935. The final valuation report of the last of these companies—the Buckeye Pipe Line Company—has recently been issued.

The 52 pipe line companies listed in "the first program" of pipe line companies to be valued, include practically all the large, important, integrated companies. Their mileage classified as "owned" aggregates 92,863 miles of a present total of approximately 98,000 miles. Of the 92,863 miles, 39,724 are classified as gathering and 53,139 as trunk lines. The final values of the properties of these companies, for rate-making purposes, totals $564,654,534, not including $7,589,194 working capital. As of the date of basic valuations the companies had outstanding $381,908,987 of capitalization.

"The companies have accumulated heavy depreciation reserves covering not only physical depreciation but depletion," I. C. C. Secretary W. P. Bartel said in a notice accompanying the summary. "The basic valuations are as of December 31, 1934, but the changes in the property are reported annually so that the Commission is in a position to readjust or revise its inventories, records and valuations up to any given date. The list of interstate carriers of oil and gasoline, and to a small extent some of the other refined products, has increased from 52 as of 1935, to 79. The remaining 27 companies are in various advanced stages of valuation, some of them already in the final. They aggregate 5,063 miles, of which 2,237 miles are trunk and 2,826 are gathering lines. This work has been carried on by the Commission without special appropriation being provided. There is an increasing appearance of the oil and gasoline competition and transportation factors in the Commission's various rate proceedings."

C. N. J. Employees to Aid Britain at "Beefeaters" Dinner

Representatives of the four brotherhoods and A. F. of L. railroad craft unions on the Central of New Jersey, in co-operation with Master Mechanic G. H. Massy, representing the management, have planned a campaign to raise funds among the road's 16,000-odd employees for the purchase of ambulances for Great Britain, specially earmarked for use by employees of the London Midland & Scottish. Feature of the campaign will be a so-called "beefeaters" dinner at Elizabeth, N. J., this evening (November 16), proceeds of which will go to swell the fund.

"Beefeaters" dinners (named for the traditional British Yeomen of the Guard) have been devised by the British-American Ambulance Corps, of New York, as an interesting means of fund-raising by volun-

These Representatives of Railroad Brotherhoods and Shopcraft and Clerks' Unions on the Central of New Jersey and Master Mechanic G. H. Massy (Shown on Extreme Right) Have Made Plans for a "Beefeaters" Dinner By Which Employees and Officers of the Road Will Raise Funds to Send Ambulances for the Aid of Fellow Railroaders on the British London, Midland & Scottish

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teer groups in business or civic life. As devised by Mrs. Walter A. Deems, lieutenant of the corps, it is customary that out of whatever charge per plate is made one dollar goes to the Corps, which supplies appropriate menus and program items.

Included among officers and sponsors of the Ambulance Corps are the following railroad and supply men: "Exon"—C. A. Gill, general manager, Central of New Jersey-Reading; chairman board of sponsors—J. M. Davis, president, Delaware, Lackawanna & Western; Sponsors—R. W. Brown, vice-president (operation), Central of New Jersey-Reading; I. L. Gordon, publicity manager, Reading; J. F. Schurch, assistant to president, Baltimore & Ohio; L. L. Cohen, president, Union Asbestos & Rubber Co.; J. F. Deems, vice-president, Edna Brass Manufacturing Company; and Arthur Dugan, vice-president, National Bearing Metals Company.

Eastman Urges Permanent Body Outside I. C. C.

Belief that it will be found necessary and desirable to create a permanent board outside of the orbit of the Interstate Commerce Commission to shape the broader policies of regulation, taxation, etc., and act as advisor to governmental agencies was expressed by Chairman Joseph B. Eastman of the I. C. C. in an address before the Transportation Club of Buffalo, N. Y., on November 12. Declaring it to be his opinion that only the government "is in a position to supply disinterested leadership with respect to transportation in its entirety," the speaker went on to express doubt that the end of transportation legislation has been reached with the Act of 1940. With particular reference to the latter's provision for a board of investigation, the former co-ordinator declared: "The conclusion might be reached, after the board has made its report, that it is desirable to have in lieu of special and sporadic investigations of transportation matters, a permanent agency not burdened, as the Interstate Commerce Commission is, with a mass of regulatory duties.

"The new permanent group would be equipped to continue the study of the broader phases of the transportation problem. It would be available at all times for advice and help, not only to the President and Congress, but also to the carriers and shippers."

C. G. W. Asks for Investment Account Rehearing

Expressing its view that the matter is "of vital importance not only to railroads undergoing reorganization but to the industry as a whole," the reorganization committee for the Chicago Great Western has asked the Interstate Commerce Commission to reconsider Division 1's disapproval of accounting entries designed to reflect the new set-up in the property accounts of the reorganized company. In the present phase of the case, the reorganization committee, consisting of Eugene A. Schmidt, Jr., William J. Sinek and Ralph H. Shaw, is undertaking to meet that condition of the commission's decision approving the final plan for the C. G. W. which stipulated that the accounting entries designed to give effect to the plan be submitted to the commission for approval.

Briefly, the issue seems to center on the reorganization committee's effort to have the reorganized company's property accounts show a property investment based on the I. C. C. valuation figures, i. e., the valuation as of 1916 plus additions and betterments since that time. The case has attracted widespread interest among railway accounting officers, discussions of it stressing the fact that a writing down of property accounts to conform with "through-the-wringer" capitalizations would result, among other things, in a substantial reduction in the book value (often used in rate cases) of the railroads as a whole or in a particular rate territory; also, it is pointed out, a distorted rate-of-return-on-investment picture might result.

To get back to the entries submitted by the C. G. W. reorganization committee and rejected by Division 1, Messrs. Schmidt, Sinek and Shaw want to charge to Account 701, Investment in Road and Equipment, $87,080,612.97, a figure based on the commission's valuation of the C. G. W. as of 1916, plus additions and betterments since that time. The excess of this figure over the total par value of securities to be issued by the reorganized company (plus or minus current and deferred assets and liabilities) would be credited to Account 757½, Reorganization Adjustments of Capital.

Last July, Director Fowler of the commission's Bureau of Accounts advised the committee that Division 1 had disapproved the foregoing, suggesting instead that property investment should be stated as a balancing figure to offset the par value of capital stock and funded debt and other liabilities assumed, and minus the current and other assets. Stating it to be their information that Division 1's action was not unanimous, the petitioners ask for reconsideration by the full commission. They assert that Division 1's proposal would: (1) Adversely affect property values; (2) upset entirely the established system of depreciation; (3) fictitiously increase earnings; (4) force a reorganized company to pay income taxes upon money representing a depletion of capital and other non-income items; (5) influence conservative management against desirable retirements, consolidations and abandonments; (6) deprive a reorganized company of its just and equitable divisions of joint rates; (7) seriously affect the ability of a reorganized company to finance capital expenditures by issue of securities; (8) impair the credit of railroad corporations generally.

I. C. C. Grants Reargument on Status of Ore-Dock Workers

The Interstate Commerce Commission has reopened for reargument that case wherein Division 3 found that a foreman, assistant foreman, and laborers employed by an independent contractor and engaged at Superior, Wisc., in the transfer of iron ore from railway cars to lake dock, and from the dock to steamships operated on the Great Lakes are not railway employees within the meaning of the Railway Labor Act. The reopening of the case (Ex Parte No. 72—Sub No. 1) came after the commission's consideration of a petition filed by the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees.

Vacancies on Senate and House Committees

Last week's national elections produced three vacancies on the Senate committee on interstate commerce and two on the House of Representatives committee on interstate and foreign commerce. The chairmanships remain unchanged, as the Democrats will retain majorities in both Senate and House, and Senator Wheeler of Montana and Representative Lea of California were both reelected. The changes, of course, will not occur until the new Congress (the 77th) convenes in January.

The three vacancies on the Senate committee will be in the memberships now held by Senators Neely of West Virginia, Donahey of Ohio and Minton of Indiana, all Democrats. Mr. Neely leaves the Senate to become governor of West Virginia; Mr. Donahey did not seek reelection; and Mr. Minton was defeated. Another vacancy is that created by the recent death of Senator Lundeen, Farmer-Laborite of Minnesota, who was killed in an airplane accident.

On the House side the two vacancies will be created as a result of defeats for reelection suffered by Representatives Ryan, Democrat of Minnesota, and Risk, Republican of Rhode Island.

Relaxes Driver-Hours Rule for Christmas-Shopping Period

Granting in part a petition of the National Retail Dry Goods Association, the Interstate Commerce Commission, Division 5, has amended Rule 3(a) of its hours of service regulations for motor vehicle drivers to provide that the rule shall not apply to drivers employed by retail stores while engaged in making deliveries during the period from December 10 to December 25, both inclusive, of each year. The rule thus suspended during the Christmas shopping period prescribes a maximum on-duty week of 60 hours.

"We wish," said the commission, "to emphasize the fact that the petition does not request and we do not grant an exemption for such drivers from Rule 3(b) of the hours of service regulations which prohibits the driver from driving or operating a motor vehicle for more than 10 hours in the aggregate in any period of 24 consecutive hours. Thus, under the exemption herein granted, while such a driver may be on duty for more than 60 hours in 168 consecutive hours during the period from December 10 to December 25, both inclusive, he may not drive for more than 10 hours in the aggregate in any period of 24 consecutive hours unless he is off duty for eight consecutive hours during or immediately following the 10 hours of aggregate driving."

Also, the commission recalled that sometime ago it denied a similar request made by a contract carrier engaged in making deliveries for department stores. It now thinks that such denial was not justified, and thus the exemption now granted "will not be confined to drivers employed by

Continued on next left-hand page

department stores but will apply to all drivers engaged in retail store deliveries during this period." Meanwhile, the commission denied that part of the N. R. D. A. petition which sought broader exemptions for retail-store drivers from Rule 5(a) which requires the maintenance of a driver's log.

Chairman Eastman and Commissioners Lee and Alldredge comprised Division 5's majority in this case. Commissioner Rogers dissented. He called Rule 3(a) "one of the two basic rules contained in the regulations"; and he deems it "unwise to exempt any drivers from this rule unless there is real necessity for such exemption and the granting of it will not adversely affect safety of operation." He was not convinced that it was necessary to grant the present exemption, which, he feels, will "tend to retard rather than promote safety of operation."

Following closely upon the above decision of Division 5 came a report by the full commission, amending in three particulars the hours of service regulations applicable to drivers employed by common and contract carriers. One of these changes is that mentioned in the foregoing, which will extend to all drivers engaged in retail store deliveries the same December 10-December 25 exemption from Rule 3(a) as was granted by Division 5 to drivers employed directly by the stores.

The other two amendments made by the commission change rule 1(d) to permit all stops made in any one village, town or city to be counted as one stop if the motor vehicle is not driven more than 10 miles in such village, town or city; and Rule 5(a) which requires maintenance of a driver's log to exempt therefrom drivers of vehicles operated within municipal zones. These two changes make those rules the same for common and contract carriers as they are for private carriers.

The commission's decision brought forth brief separate expressions, each dissenting in part, from Commissioners Rogers, Splawn, and Patterson. Commissioner Johnson concurred in Mr. Rogers' statement, while Commissioner Miller did not participate in the disposition of the case.

Supply Trade

Marvel Equipment Corporation, Chicago, has moved its sales office from its factory to 224 South Michigan Avenue, Chicago.

The American Car & Foundry Company has awarded a contract to the L. O. Stocker Company for the construction of a one-story 50 ft. by 50 ft. brick addition to its car building plant at St. Louis, Mo.

The Inland Steel Company, Chicago, has opened a district sales office at 40 Wall street, New York, to handle export and domestic business in the eastern territory. **Powell Pardee,** special representative at New York, has been promoted to district sales manager.

Earl G. Morgan, formerly a district representative of the Vilter Manufacturing Company, has joined the air conditioning and refrigeration division of the **Worthington Pump & Machinery Corporation** as sales representative with headquarters at company's Kansas City, Mo., office.

* * *

Photo Courtesy Canadian National

This Light Refreshment Dispenser at the Canadian National's Bonaventure Station, Montreal, Que., is the First of a Number of Tea Wagons Being Set Up at Canadian Railway Stations and Seaboard Piers to Brighten the Way for Troops Passing Through. The Wagons Are Being Presented to the Canadian Legion War Services by the Empire Tea Growers.

Equipment and Supplies

Wabash Announces Five-Year Program

The Wabash is contemplating expenditure of approximately $8,000,000 for new equipment during the next 5 years, according to company officers, which will include purchase of 1,800 freight cars, 3 steam locomotives, 15 Diesel-electric switching locomotives and an undetermined number of passenger cars. Company expects that a total of 13,000 tons of rail will be laid this year and reported the 1941 program as consisting of 12,000 tons of 112 lb. rail.

LOCOMOTIVES

THE SEABOARD AIR LINE is in the market for two 600-hp. Diesel-electric switching locomotives.

FREIGHT CARS

THE LOUISVILLE & NASHVILLE is inquiring for 3,000 hopper cars, 100 automobile cars and 50 mill type gondola cars.

THE CHICAGO, WEST PULLMAN & SOUTHERN has accepted delivery of two 50-ton gondola cars built in company shops.

THE UNITED STATES has ordered twenty 40-ft. 6 in. box cars from the General American Transportation Corporation.

THE CANADIAN GENERAL TRANSIT COMPANY, LTD., Montreal, Que., has received delivery of one all-steel tank car from the Canadian Car & Foundry Co.

THE BESSEMER & LAKE ERIE is reported, but not officially confirmed, to be inquiring for 690 90-ton hopper cars, 300 50-ton box cars and 50 50-ton flat cars.

THE CORPS OF ENGINEERS of the U. S. Army has ordered four 40-ft. flat cars from the Haffner-Thrall Car Company for use at Proving Ground, Ill.

THE WHEELING & LAKE ERIE was erroneously reported in the *Railway Age* of November 9, page 695, as inquiring for 65 hopper cars, 300 box cars and 50 flat cars.

THE U. S. NAVY has ordered six 40-ft. 50-ton gondola cars for use at Norfolk, Va., and five 40-ft. 50 ton flat cars and three 40-ft. 50-ton box cars for use at Philadelphia, Pa., from the Haffner-Thrall Car Company.

THE NORTH WESTERN REFRIGERATOR LINE COMPANY, Chicago, has received delivery from the American Car & Foundry Co. of 100 40-ton and 100 50-ton refrigerator cars. Inquiry for this equipment was reported in the *Railway Age* of March 16, page 530.

THE ELECTRO BLEACHING GAS COMPANY, Niagara Falls, N. Y., has received delivery of one all-steel tank car of 40 tons' capacity from the American Car & Foundry Co. This is in addition to three 40-ton tank cars from American Car &

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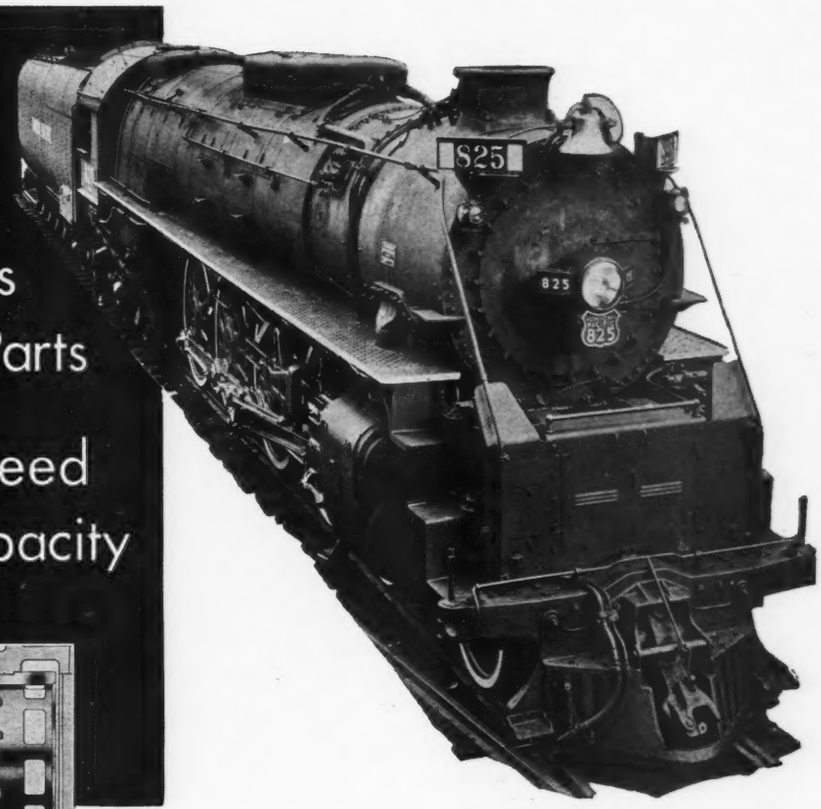
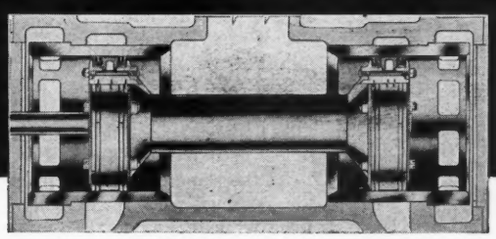
HSGI

Light Weight Valves *and* Wear-resisting Parts

Increase High Speed Power Earning Capacity





1810 130th 1940 ANNIVERSARY

LASHING the "Iron Horse" created several maintenance problems. High speeds and heavy reciprocating parts refuse to co-operate with each other.

Application of H S G I Light Weight Valves has solved several expensive maintenance problems caused by high speed operation.

By reducing shocks and wear to a minimum H S G I Light Weight Valves are effecting big savings in the upkeep of valve chamber parts and valve gear components.

They also improve locomotive efficiency by providing more prompt and positive cut-offs. Every H S G I part listed below contributes to the economy of locomotive operation.

H S G I
Reg. U. S. Trade Mark

Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
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Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
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Finished Parts

Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
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Cylinder Snap Rings
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HUNT-SPILLER GUN IRON

Air Furnace

Foundry Co. and two 40-ton tank cars from General American Transportation Company received earlier this year.

THE WILSON CAR LINES, division of Wilson & Co., Chicago, has completed construction in own shops of 200 steel-frame refrigerator cars of 35 ton's capacity and expects to begin construction on an additional 200 refrigerator cars later this month.

PASSENGER CARS

THE NEW YORK CENTRAL is asking for bids on 25 passenger coaches.

IRON AND STEEL

THE CHICAGO, BURLINGTON & QUINCY is inquiring for 30,000 tons of rails.

THE CENTRAL OF NEW JERSEY is expecting to purchase 3,500 tons of rail.

THE ST. LOUIS SOUTHWESTERN has ordered 1,500 tons of rails from the Tennessee Coal, Iron & Railroad Company.

THE NEW YORK, NEW HAVEN & HARTFORD has received court permission to purchase 10,000 tons of 131 lb. rail and 5,000 tons of 112 lb. rail plus accessories.

THE MISSOURI PACIFIC has ordered 31,138 tons of rails, placing 9,230 tons with the Colorado Fuel & Iron Company; 10,068 tons with the Carnegie-Illinois Steel Company; 5,025 tons with the Inland Steel Company and 6,815 tons with the Tennessee Coal, Iron & Railroad Company.

Financial

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Reorganization.*—The District court at Chicago on November 13 signed a final decree approving the reorganization plan for this road. The plan has been approved by the Interstate Commerce Commission.

CHICAGO, ROCK ISLAND & PACIFIC.—*Abandonment by the White & Black River Valley.*—The White & Black River Valley would be authorized to abandon its entire line extending from Brinkley, Ark., to Jacksonport, 56.5 miles, together with a branch line extending from Wiville, Ark., to Gregory, six miles; and the Chicago, Rock Island & Pacific and the Choctaw, Oklahoma & Gulf would be authorized to abandon operation of that portion of the line of the White & Black River Valley extending from Brinkley, Ark., to Newport, 53.1 miles, if Division 4 of the Interstate Commerce Commission adopts a recommended order of Examiner J. S. Prichard.

Examiner Prichard would have Division 4 attach a condition to the certificate to the effect that the road must be sold within a specified time to any responsible person who would be willing to purchase it for continued operation at a price not less than its fair net salvage value.

GREAT NORTHERN.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon 4.5 miles of line in Ferry County, Wash., extending from milepost 60 plus 00 to milepost 291 plus 58.8.

ILLINOIS CENTRAL.—*Bonds.*—Acting on this company's request, Division 4 of the Interstate Commerce Commission has dismissed its application for authority to issue $1,967,000 of collateral trust bonds.

KLAMATH NORTHERN.—*Acquisition.*—This company would be denied the authority to acquire and operate a line of railroad now owned by the Gilchrist Timber Company and extending from Gilchrist Junction, Oreg., to the plant of the Gilchrist Timber Company, near Gilchrist, 10.6 miles, if Division 4 of the Interstate Commerce Commission adopts a proposed finding of its Examiner Lucian Jordan. The examiner further found that if the application is granted the applicant would continue to serve principally as a plant facility for the parent timber company, which would own all the common stock of the new company, the Klamath Northern.

He also found that the points proposed to be served are now served regularly by motor carriers and that there was nothing in the record to indicate that additional common carrier service is warranted. "The principal result of the proposed operation," concluded the examiner, "would be the granting, indirectly, of a reduction of $20 a carload in the rate on lumber shipped by the Gilchrist Timber Company." (It is pointed out in the proposed report that the record showed that the Southern Pacific would allow the applicant a division of the rate on the lumber traffic amounting to $20 a carload.)

NEW YORK CENTRAL.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a part of its Lansing branch extending from Lansing, Mich., to Springport, 23.6 miles.

NEW YORK, NEW HAVEN & HARTFORD.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a branch line extending from Adamsdale Junction, Mass., to Franklin Junction, 11.2 miles.

NORFOLK & WESTERN.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon its Lewis Creek branch extending from Lewis Creek Junction, Va., in a northerly direction to the end of the line, 9.1 miles. Operation of the line was discontinued by order of the commission on October 14, 1938.

PENNSYLVANIA.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon the following lines:

1. Morrisons Cove branch, extending from Curry, Pa., to Henrietta, three miles;
2. Bellwood branch, extending from Bellwood, Pa., to Blandburg, 9.3 miles;
3. Tearing Run branch, extending from Graceton, Pa., to the terminus of the Tearing Run branch at valuation station 44 plus 62, 0.8 mile; and
4. The Kennerdell branch, extending from Kennerdell Tunnel, Pa., to the terminus of the Kennerdell branch at Kennerdell, 2.7 miles.

PERE MARQUETTE.—*Equipment Trust Certificates.*—This road, on November 1, awarded a $2,200,000 issue of 2 per cent serial equipment trust certificates to a financial group consisting of Salomon Brothers & Hutzler, Dick & Merle-Smith, and Stroud & Co., Inc., on a bid of 101.425 and accrued dividends, which represents an interest cost basis to the road of approximately 1.727 per cent. The certificates, dated November 15, 1940, are payable in ten equal annual installments.

ST. LOUIS-SAN FRANCISCO.—*Acquisition and Abandonment.*—Because of the construction by the federal government of the Denison Dam in Oklahoma and the inundation of this company's tracks, the latter has asked authority from the Interstate Commerce Commission to acquire the following lines to be constructed by the United States Government:

1. From Ravia, Okla., to Randolph, 3.1 miles;
2. From Liggett, Okla., to Platter, 11.6 miles; and
3. From Mead, Okla., to Lakeside, 4.1 miles, a total of 18.8 miles.

At the same time the company has asked the commission for authority to abandon the following lines:

1. From Madill, Okla., to Mead, 16.6 miles;
2. From Liggett, Okla., to Platter, 10.8 miles; and
3. From Ravia, Okla., to Randolph, 2.6 miles, a total of 30 miles.

ST. LOUIS SOUTHWESTERN.—*Abandonment by the Stephenville North & South Texas.*—Berryman Henwood, trustee of the St. Louis Southwestern of Texas, has asked the Interstate Commerce Commission to permit him to immediately abandon operation of the Stephenville North & South Texas because of the fact that that road has no equipment, funds, or personnel. On October 7, Division 4, acting on the protest of the city of Hamilton, Tex., extended indefinitely the effective date of an order authorizing the Stephenville and the St. Louis Southwestern of Texas, respectively, to abandon the line and the operation of the line extending from Gatesville, Tex., to Hamilton, 32.7 miles. In his petition, the trustee told the commission that it would be unfair to the Stephenville to force the St. Louis Southwestern of Texas to continue the operation of the line and charge the deficit to the Stephenville's account.

SAVANNAH & ATLANTA.—*R. F. C. Loan.*—Division 4 of the Interstate Commerce Commission has amended its certificate and order in Finance Docket No. 12253 so as to show that this company has borrowed only $1,235,000 from the Reconstruction Finance Corporation rather than the $1,300,000 previously authorized.

SIERRA.—*Reduction of Interest Rate.*—This company has asked the Interstate Commerce Commission for authority to reduce the maximum interest rate of its 40-

year, sinking fund, income bonds from five to three per cent for the years 1940, 1941, 1942, and 1943, inclusive.

SOUTHERN PACIFIC.—*Abandonment.*—The Interurban Electric has been authorized by Division 4 of the Interstate Commerce Commission to abandon operations over 40 miles of track of the California Toll Bridge Authority, the Southern Pacific and the Central Pacific, between San Francisco, Calif., and the surrounding Bay cities. At the same time Division 4 has authorized the Southern Pacific to abandon 19.6 miles of track in the same area, this track being a part of the 40 miles operated by the Interurban Electric.

Organized railroad labor had asked for severance pay for those employees who would lose their jobs, but Division 4 did not find sufficient evidence to justify such a finding. Commissioner Porter dissented in part, saying that he adhered to the position that he had taken heretofore in believing "that we have ample power to attach reasonable conditions for the protection of the employees involved in such cases as this and that we should do so here."

Abandonment.—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a portion of its San Jose-Santa Cruz branch extending from Los Gatos, Calif., to Olympia, 15.2 miles.

TEXAS CITY TERMINAL.—*R. F. C. Loan.*—This company has asked the Interstate Commerce Commission to approve a plan whereby it would borrow from the Reconstruction Finance Corporation $1,897,000, the loan to be evidenced by an equivalent amount of first mortgage 20-year sinking fund four per cent bonds, series A. The proceeds of the loan would be used to retire and discharge at their maturity, January 26, 1941, the presently outstanding first mortgage bonds of the company, aggregating $1,897,700. The new bonds would be dated January 24, 1941, and would mature January 24, 1961.

WHEELING & LAKE ERIE.—*Equipment Trust Certificates.*—This road has awarded a $1,550,000 one per cent serial equipment trust issue, Series G, to Mellon Securities Corporation, Lazard Freres & Co., Kidder, Peabody & Co., and E. W. Clark & Co., of New York, on a bid of 98.87. The certificates, which are due serially November 15, from 1941 to 1950, inclusive, were reoffered at prices to yield 0.20 per cent to 1.55 per cent. The interest rate of 1 per cent is reported to be a record low for railroad equipment trust certificate issues.

Average Prices of Stocks and Bonds

	Nov. 12	Last week	Last year
Average price of 20 representative railway stocks..	31.62	30.48	33.71
Average price of 20 representative railways bonds..	61.29	60.03	59.58

Dividends Declared

Albany & Vermont.—$1.25, payable November 15 to holders of record November 1.

Cincinnati, New Orleans & Texas Pacific.—Preferred, $1.25, quarterly, payable December 2 to holders of record November 15.

Pittsburgh, Youngstown & Ashtabula.—Preferred, $1.50, quarterly, payable December 2 to holders of record November 20.

Construction

CANADIAN NATIONAL.—A contract has been awarded Fred Mannix, Calgary, Alta., for placing earth embankment to eliminate all but 64 ft. of the north approach trestle of the Battle River bridge on the outskirts of Battleford, Sask. The approach trestle at present is approximately 958 ft. long and averages about 30 ft. in height. Approximately 60,000 cu. yd. of embankment will be required.

CHICAGO, ROCK ISLAND & PACIFIC and the CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—A petition has been submitted to the Interstate Commerce Commission for the construction of a new line for both roads from Birmingham, Mo., to Air Line Junction. The new line will be approximately 4½ miles long and will be double tracked with the exception of that portion on a new bridge over the Missouri river, on which the tracks will be gauntleted. The new line at its southern terminus will connect with the Kansas City Southern "high line" and will provide a new entrance for the Rock Island into Kansas City, Mo., eliminating the necessity of turning through passenger train equipment. According to tentative plans, the new bridge will be about 2,600 ft. long and will consist of one lift span, several large through truss spans and several approach girder spans at the south end.

ILLINOIS TERMINAL.—A general contract, not including plumbing, heating and wiring, has been awarded Bumiller & Myersieck, St. Louis, Mo., for the construction of a freight warehouse building in St. Louis, which will cost approximately $25,000. The building will be a one-story brick and concrete structure 40 ft. by 208 ft., with 160 ft. of its length devoted to warehouse purposes and the remainder occupied by offices, toilet rooms and a heater room. The building will be served by three tracks on one side and a driveway on the other. A reinforced concrete platform 10 ft. wide and four vertical rolling doors will serve the track side and 10 such doors will serve the driveway side. The roof will be an asphalt built-up type on frame construction, supported on steel I-beams extending the full width of the building and platform.

MISSOURI PACIFIC.—Approximately 3½ miles of track is being constructed from Abney, Tex., to a connection with the Port Isabel & Rio Grande, which with the purchase of 10½ miles of the latter road, will give the Gulf Coast Lines (Missouri Pacific subsidiary) access to Port Isabel, Tex. The grading will be light, no bridges will be required and the track will be laid with 75-lb. rail. The total cost of the construction will be about $60,000.

THE NEW YORK CENTRAL.—The New York State Public Service Commission has approved a bid in the amount of $94,218, submitted by Cefali & Dean of South Wales, New York, as the cost of elimination of the Macedon-Cator Four Corners crossing of this road in the town of Macedon.

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

Roy P. Casper has been appointed assistant general attorney of the St. Louis Southwestern, with headquarters at St. Louis, Mo., succeeding **T. R. Schneider,** who has resigned.

Walton J. Wright, whose retirement as treasurer for the trustee of the Missouri Pacific Lines, with headquarters at St. Louis, Mo., was announced in the *Railway Age* of November 9, was born at Front Royal, Va., on October 27, 1869, and entered railway service in 1887 as an agent and telegraph operator on the Missouri Pacific, serving in various localities in Missouri and Kansas. He later became a clerk in the local freight office at Memphis, Tenn., and in 1891, he was appointed a traveling auditor. He later became chief clerk of the station agents accounts division of the general auditing department, and in October, 1909, he was promoted to auditor of freight receipts, with headquarters at St. Louis. From August, 1918, to March, 1920, Mr. Wright served as auditor in charge of accounts of the Louisiana & Arkansas, for the United States Railroad Administration, with headquarters at Texarkana, Ark., then returning to the Missouri Pacific as assistant auditor at St. Louis, Mo. In 1926, he was promoted to assistant general auditor and on January 1, 1928, he was appointed local treasurer of the Missouri Pacific. Mr. Wright was appointed treasurer for the trustee of the Missouri Pacific Lines in 1934, the position he held until his retirement.

Edgar W. Young, whose appointment as general solicitor of the Baltimore & Ohio at Baltimore, Md., was reported in the *Railway Age* of October 26, was born in Moscow Mills, Md., on February 20, 1884. Upon completion of his high school

Edgar W. Young

course in Cumberland, Md., Mr. Young entered the law offices of the Baltimore & Ohio counsel there as clerk. He then entered the employ of the Baltimore & Ohio as secretary in the division offices at Cum-

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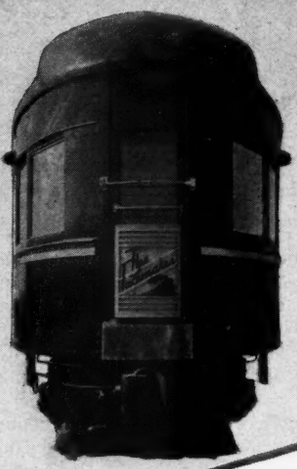
"RAILWAY" SPRINGS



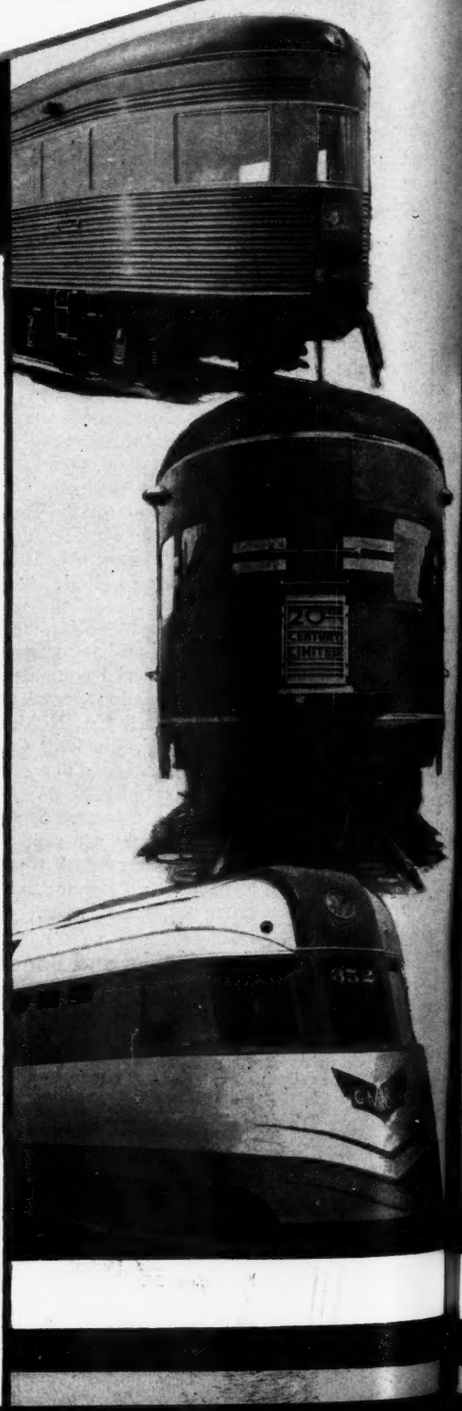
INSURE Smooth

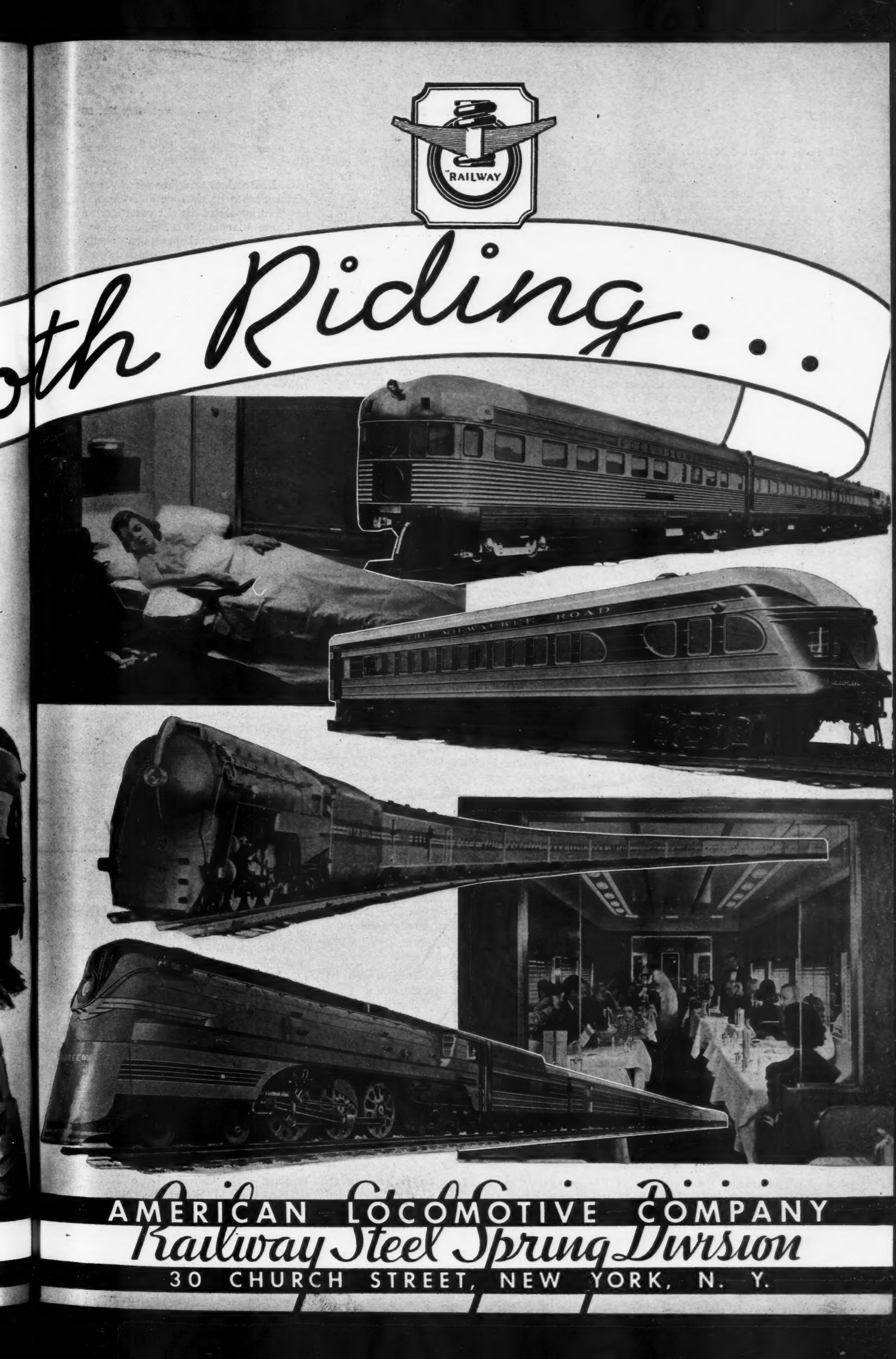
THE general pick-up in passenger traffic in recent years can be attributed to an all-around improvement in rail transportation — in which smooth riding comfort has played a major part.

Whether it be in a bedroom — diner — observation—parlor car or coach—the traveling public is constantly cognizant of how cars ride — and all the finery of deluxe decorations and appointments will go for naught if the cars do not glide along in velvety-smooth fashion.

High speed equipment presents unusual spring problems calling for comprehensive tests and a thorough knowledge of railroad requirements. Many of these problems have been solved with unqualified success by "Railway" Spring experts.

The "Railway" organization, qualified by long experience, up-to-the-minute research, testing and manufacturing facilities, will give you exactly the right springs for greatest passenger comfort.




RAILWAY
oth Riding . . .
AMERICAN LOCOMOTIVE COMPANY
Railway Steel Spring Division
30 CHURCH STREET, NEW YORK, N. Y.

berland and later was transferred to the general superintendent's office at Baltimore, Md. On September 1, 1906, he entered the law department at Baltimore as secretary to the general attorney. In 1910, Mr. Young was graduated from the University of Maryland Law School and was admitted to the Bar in the same year. He was appointed chief clerk of the law department on September 1, 1915, and on November 1, 1923, he was appointed assistant general attorney. On October 1, 1936, he was appointed assistant general solicitor, which position he held until his recent appointment as general solicitor.

William Sherman Jenney, special counsel of the Delaware, Lackawanna & Western, with headquarters at New York, has retired from active service at his own request. Mr. Jenney was born at Syracuse, N. Y., and was graduated from Princeton University in 1889. He entered the service of the Lackawanna in April, 1891, and served successively as local attorney at Syracuse, district attorney, and general attorney at New York. He became vice-president and general counsel on March 1, 1908, in which capacity he served until January 1, 1939, when he resigned from that position, but continued with the company as special counsel.

OPERATING

Alfred C. James has been appointed superintendent of insurance and safety of the Atlantic Coast Line, with headquarters at Wilmington, N. C.

George F. Rieser, lighter foreman in the marine department of the Delaware, Lackawanna & Western, at Pier 13, North River, New York, has retired after continuous service since the inception of the marine department in 1905.

K. E. Dawson, fuel engineer on the Illinois Central, with headquarters at Chicago, has been appointed trainmaster, with headquarters at Fulton, Ky., succeeding **I. D. Holmes,** who has been assigned to other duties.

J. W. Kern, division superintendent on the Illinois Central, with headquarters at Paducah, Ky., has been given a leave of absence because of illness, and his duties will be assumed temporarily by **W. A. Johnston,** assistant to the vice-president and general manager.

E. E. Walter has been appointed assistant general manager in charge of car service of the Pacific Fruit Express (jointly controlled by the Southern Pacific, the Union Pacific and the Western Pacific) with headquarters at Chicago, succeeding **J. T. H. Armstrong,** deceased.

Christopher T. Sponsel, whose promotion to division superintendent on the Northern Pacific, with headquarters at Glendive, Mont., was announced in the *Railway Age* of September 21, was born in Chicago on March 31, 1887, and studied civil engineering at the University of Illinois from 1906 to 1909. He entered railway service in June, 1906, in the engineering department of the Northern Pacific during his summer vacation from the university. He worked in the same department the following two summers, and continued in that work in 1909, serving as a chainman, rodman and resident engineer on construction in North Dakota and Montana until 1913, when he was promoted to roadmaster at Mandan, N. D., later being transferred to Helena, Mont. In 1918, he was promoted to trainmaster and served in that capacity at Mandan, Forsyth, Mont., and Dickinson, N. D., until May, 1929, when he was advanced to assistant to the general superintendent of the Eastern district, with headquarters at St. Paul, Minn. Mr. Sponsel was appointed assistant superintendent of the Lake Superior division, with headquarters at Duluth, Minn., on September 1, 1930, the position he held until his recent promotion.

A. E. Vause, terminal trainmaster on the Seaboard Air Line, has been appointed trainmaster of the South Florida division, with headquarters as before at Tampa, Fla., succeeding **Fred Duffy,** retired. **L. M. Parmley,** terminal trainmaster at Richmond, has been transferred to Tampa, succeeding Mr. Vause. **J. R. Thorne** has been appointed terminal trainmaster at Richmond, succeeding Mr. Parmley.

TRAFFIC

R. M. Barnett has been appointed general agent of the Seaboard Air Line, with headquarters at Washington, D. C.

Sherman K. Burke, assistant to the vice-president in charge of system freight traffic of the Southern Pacific, has been promoted to assistant vice-president, system freight traffic, with headquarters as before at San Francisco, Cal., a newly created position.

William F. Vail, traveling freight and passenger agent for the Wabash at Philadelphia, Pa., has been promoted to acting general agent at that point, succeeding **W. McCrackan,** who has been temporarily appointed acting general agent at New York.

C. E. Carner, traffic manager of the Pacific Fruit Express Company (jointly controlled by the Southern Pacific, the Union Pacific and the Western Pacific) has been appointed assistant general manager in charge of traffic, with headquarters as before at Chicago, a change of title.

C. W. Wells, general freight agent of the Canadian National at Montreal, Que., has been transferred to Toronto, Ont. **F. J. Stock,** division freight agent at Ottawa, Ont., has been appointed general freight agent at Montreal. **F. G. Gould,** division freight agent at Toronto, has been appointed assistant general freight agent at Toronto.

A. A. Bolton, perishable freight agent on the Denver & Rio Grande Western at San Francisco, Cal., has been appointed district manager of perishable freight traffic, a change of title, with headquarters as before at San Francisco. **H. J. Riggert,** city freight agent at Chicago, has been promoted to general agent, freight department, at Salt Lake City, Utah, a newly created position. The position of commercial agent at Salt Lake City has been abolished.

G. L. Borden, traveling passenger agent of the Seaboard Air Line at Atlanta, Ga., has been appointed district passenger agent at Camp Blanding, Fla., reporting to W. J. Kenealy, general passenger agent at Jacksonville, Fla. Mr. Borden has also been selected by Chairman M. B. Duggan of the Southern Passenger Association to act as liaison officer between the rail carriers and the United States War Department for the handling of military traffic at Camp Blanding.

P. J. Lee, assistant general freight agent of the Atlantic Coast Line at Columbia, S. C., has been transferred to Tampa, Fla. **E. E. Graham** has been appointed assistant to freight traffic manager at Wilmington, N. C. **Ben H. Brown,** assistant to freight traffic manager of the Atlantic Coast Line at Wilmington, has been appointed assistant general freight agent of that road, the Charleston & Western Carolina and the Columbia, Newberry & Laurens, with headquarters at Columbia.

Samuel C. Inkley, whose promotion to general freight agent of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., was announced in the *Railway Age* of October 12, was born in East St. Louis, Ill., on January 17, 1899, and attended the night law school of the City College of Law and Finance at St. Louis from 1927 to 1931. He entered railway service on August 1, 1913, as an office boy in the accounting department of the Frisco at St. Louis and on April 1, 1914, transferred to the traffic department, later serving in various clerical capacities. In November, 1924, he was promoted to chief clerk of the commerce department and on December 1, 1934, he was advanced to assistant general freight agent, with headquarters at St. Louis. In June, 1936, Mr. Inkley was assigned the work of handling the Western Trunk territory rate adjustments and on November 1, 1938, he was assigned to assist in handling the Southwestern Freight Bureau territory rate adjustments, continuing in this work until his promotion to general freight agent on October 1.

ENGINEERING AND SIGNALING

Frank A. Tranzow, superintendent of track of the Grand Trunk Western, with headquarters at Detroit, Mich., retired on October 31. Mr. Tranzow entered the service of the Chicago & Grand Trunk (now part of the Grand Trunk Western) in October, 1899, as a section laborer at Port Huron, Mich., and was promoted to roadmaster, with headquarters at Durand, Mich., on March 1, 1903. On January 1, 1914, his title was changed to supervisor of track and on August 1, 1928, he was advanced to superintendent of track, with headquarters at Detroit.

S. E. Armstrong, whose promotion to engineer maintenance of way of the New York Central system at New York was reported in the *Railway Age* of November 9, was born at Somerville, Mass. Mr. Armstrong entered railroad service with the New York Central in January, 1904, as a chainman at Buffalo, N. Y. In March,

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1905, he became assistant supervisor of track at Rochester, N. Y., and in August, 1905, he was appointed transitman at Buffalo. In December, 1906, he was appointed second assistant engineer at Rochester; in 1911, assistant supervisor of track; and in 1913, assistant engineer. He became supervisor of track in 1914 and division engineer at Jersey Shore in 1920. In March, 1916, he was appointed engineer of standards at New York, which position he held until his promotion to engineer maintenance of way of the system, effective November 1.

S. E. Armstrong

H. E. Woodburn, assistant division engineer of the Peoria & Eastern, with headquarters at Indianapolis, Ind., has been promoted to division engineer of the Illinois division of the New York Central (Big Four), with headquarters at Mattoon, Ill., succeeding **Frank G. Smith,** who has been transferred to Buffalo, N. Y.

MECHANICAL

Frank W. Taylor, general shop foreman on the St. Paul division of the Northern Pacific, has been promoted to master mechanic of the Yellowstone division, with headquarters at Glendive, Mont., succeeding **F. J. Regan,** deceased.

OBITUARY

John C. Poore, who retired in 1928 as assistant general passenger agent on the Northern Pacific, with headquarters at St. Paul, Minn., died suddenly at his home at La Jolla, Cal., on November 10.

James John O'Shea, auditor of the Atlanta & West Point, the Western Railway of Alabama and the Georgia Railroad, with headquarters at Atlanta, Ga., died on November 7 at his home in that city, at the age of 58.

Charles D. Morris, who served as assistant to the chairman of the Western Railways Committee on Public Relations, with headquarters at Chicago, from 1928 until his retirement in the latter part of 1937, died at Chicago on November 8.

Mr. Morris was born near Buena Vista, Ohio, on November 21, 1867. He was the former publisher and editor of the St. Joseph (Mo.) Gazette and also published newspapers in Marysville, Mo., and Trenton. He had been chairman of the Republican state committee of Missouri and once had been a candidate for governor of the state. During the world war he served with the American Red Cross in France and England. Since his retirement in 1937, Mr. Morris had lived in Laurelville, Ohio.

Ora Clair Montgomery, assistant superintendent of power of the New York Central at New York, died suddenly on November 10 from a heart attack, at the age of 56 years. Mr. Montgomery was born on March 29, 1884, at Scribner, Neb., and entered the service of the New York Central in June, 1916, as a tester in the engineering department. He was appointed a special engineer the following year and in May, 1918, was given a leave of absence to enter the Army, in which he was commissioned a first lieutenant, United States Engineers. In January, 1919, he returned to railroad service as computer and was appointed an engineer in the power department the following month. In July, 1921, he was appointed special staff engineer, power department, electric division, and became assistant superintendent of power in May, 1926.

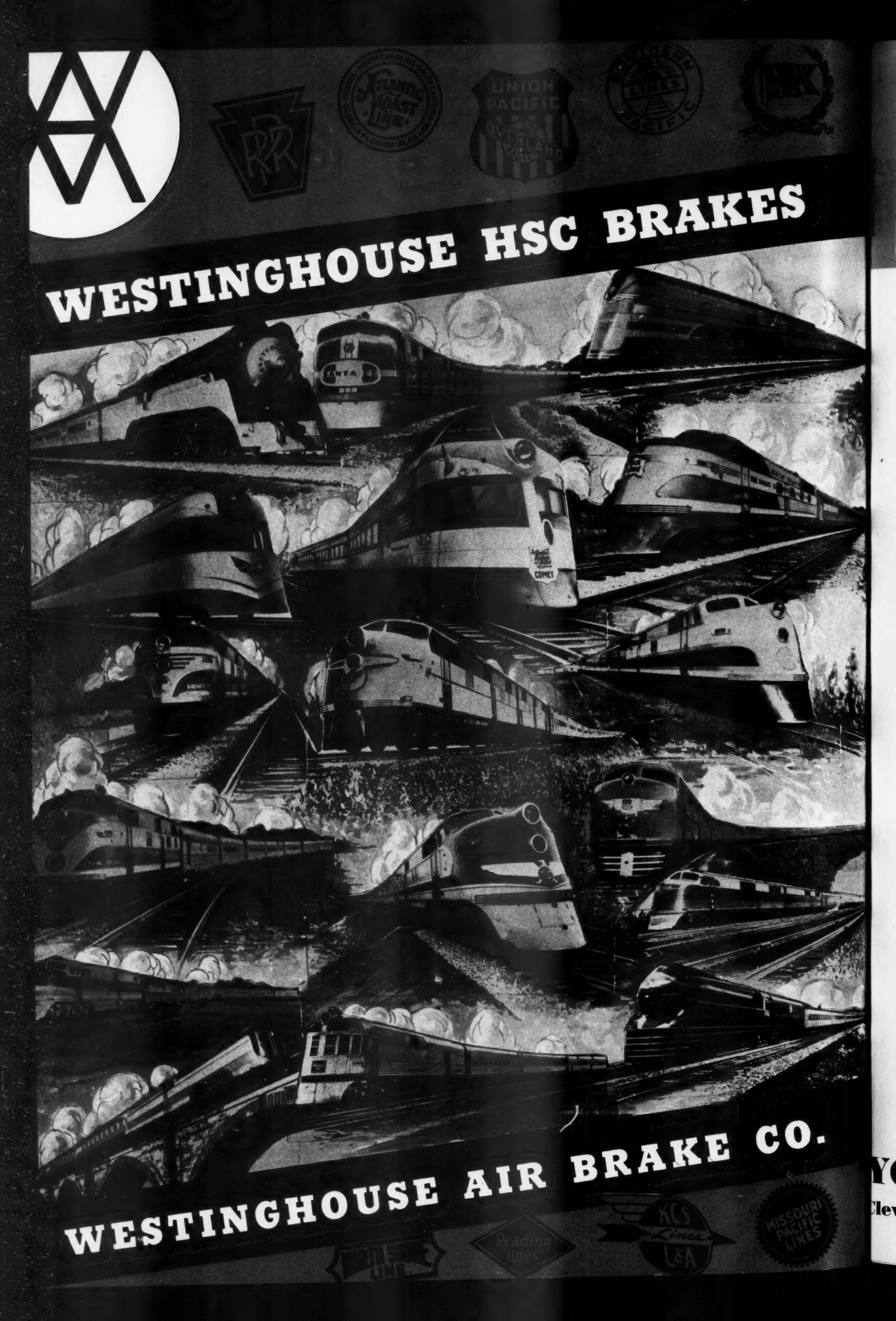
Alva J. Elder, assistant general manager of the Eastern lines of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, died on November 7, in the Washington Boulevard hospital in that city, at the age of 48, following a brief illness. Mr. Elder was born at Pierson, Iowa, on January 8, 1892, and entered railway service in 1906 as a call boy on the Milwaukee at Perry, Iowa. He learned telegraphy at that point and a year later he was appointed telegraph operator at Portsmouth, Iowa. In October, 1911, he was promoted to train dispatcher at Perry, later being transferred to Sioux City, Iowa. Mr. Elder was promoted to chief dispatcher at Mitchell, S. D., in November, 1919, and the following year he was transferred to Savanna, Ill. In December, 1921, he was promoted to trainmaster of the Terminal division at Milwaukee, Wis., and in February, 1925, he was advanced to assistant superintendent of the Twin City terminals, with headquarters at Minneapolis, Minn. In April, 1926, Mr. Elder was promoted to division superintendent, with headquarters at Sioux City, later being transferred successively to Terre Haute, Ind., Marion, Iowa, and Savanna. In September, 1938, he was advanced to general superintendent, with headquarters at Milwaukee, and on October 1, 1939, he was appointed assistant general manager of the Eastern lines, with headquarters at Chicago, the position held at the time of his death.

K. C. Marshall, superintendent of the Houston division of the Southern Pacific Lines in Texas and Louisiana, with headquarters at Houston, Tex., whose death on October 27 was announced in the *Railway Age* of November 9, was born on January 29, 1878, and entered railway service in 1896, serving on various railroads, including the New York Central, the Chicago, Rock Island & Pacific, the Mexican Central (now part of the National Railways of Mexico), the Missouri Pacific, the Missouri-Kansas-Texas, and the St. Louis Southwestern as a telegrapher, brakeman, conductor, dispatcher, chief dispatcher, trainmaster and superintendent. In May, 1921, he went with the Southern Pacific Lines in Texas and Louisiana, and served successively as a dispatcher, transportation inspector, chief dispatcher, trainmaster, assistant superintendent and superintendent of terminals. On March 1, 1934, Mr. Marshall was promoted to superintendent of the Houston division, which position he occupied at the time of his death.

Charles Bronson Seger, reputedly one of the country's leading experts on railroad finance, who was corporate president of the Union Pacific during wartime control from March, 1918, to January, 1919, and who retired as chairman of the road's executive committee in August, 1932, died at his home in Lynchburg, Va., on November 11, at the age of 73. Born in New Orleans, La., on August 29, 1867, Mr. Seger was educated in the public schools there and entered railway service on March 1, 1883, as an office boy with the Morgan's Louisiana & Texas Railway & Steamship Company. Later he was promoted to clerk, steamship auditor, traveling auditor and chief clerk to the general auditor. From 1893 to 1904 he was auditor and secretary of the Galveston, Houston & Northern (now Texas & New Orleans). In the latter year he was appointed auditor of the Pacific system of the Southern Pacific at San Francisco, Cal., which position he held until 1909, when he was appointed general auditor of the Union Pacific and Southern Pacific. In 1911 he was promoted to deputy comptroller and in 1913 was promoted to vice-president and comptroller of the Union Pacific System.

Charles Bronson Seger

In March, 1918, Mr. Seger became president of the Union Pacific, serving until January, 1919, in which year he resigned to become president of the United States Rubber Company, which position he held until 1929. He continued to serve the Union Pacific meanwhile, however, as a director and chairman of the executive committee until August, 1932. He has also served as director at various times of a number of industrial concerns and of the New York Central and a number of its constituent companies, including the Pittsburgh & Lake Erie.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